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JEL Classification: D91, I12, J16, J24, Z13

Keywords: N/A

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Masculinity Around the World*

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Abstract

This paper explores the socioeconomic roles of masculinity norms. We collect the first cross-cultural evidence on men's adherence to dominance masculinity norms from nationally representative, face-to-face surveys across 43 countries in Europe, Asia, the Middle East, and Africa. Our analysis unveils substantial variation in adherence to these norms, both across and within countries, and identifies three domains where they exert significant influence. In the economic domain, adherence to dominance masculinity correlates positively with behaviors supporting economic growth, such as labor supply at the intensive margin, but also generates frictions by constraining occupational choice to traditionally masculine sectors. In the health domain, adherence to dominance masculinity is linked to more risk-taking, higher rates of depression, and shorter lifespans among men. In politics, it predicts both individual demand for strongman populism and its political supply at the country level. Across all domains, dominance masculinity norms play a role distinct from, and sometimes opposite to, social norms about women and gender roles.

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Keywords: Masculinity; gender norms; gender gaps; occupational sorting; populism

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1 Introduction

Social norms prescribing women's roles and behaviors continue to underpin persistent gender inequalities. These norms guide women's sexual and reproductive health behavior (Jayachandran, 2015; Becker, 2024), dictate how women should take care of their homes and children (Bertrand et al., 2015), how much labor they should supply (Alesina et al., 2013; Grosjean and Khattar, 2019; Jayachandran, 2021) and which education, occupations, and political ambitions are appropriate for them (Beaman et al., 2009; Alesina et al., 2013; Blau and Kahn, 2017). Due to their far-reaching impact, social norms about women and gender roles continue to attract significant attention from media and researchers.[1] They also lie at the heart of many policy initiatives promoting gender equality.

In comparison, social norms about the appropriate behavior of *men*—that is, masculinity norms—have received less attention. This paper aims to rectify this imbalance by providing the first large-scale, cross-cultural, and nationally representative evidence on individual men's adherence to a specific set of masculinity norms. We show how accounting for these masculinity norms deepens our understanding of men's economic, social, and political decision-making and sheds new light on the drivers of gender inequality.

We measure masculinity norms through a set of survey questions. These questions focus on norms and practices identified as most characteristic of male behavior (Pleck, 1995; Levant et al., 2007). These norms specifically measure what we term "dominance masculinity"—modes of behavior that reinforce male dominance in society and the perceived inferior status of women as well as men who do not conform to these norms.[2] We take these questions from the Conformity to Masculinity Norms Inventory (CMNI), a standard measure of dominance

[1] We refer to gender roles norms as the socially accepted relative roles of women and men in different spheres of influence, such as the work place, politics, and the domestic sphere. See Giuliano (2020) for a review and Bursztyn et al. (2023) for a recent contribution.

[2] What we term dominance masculinity is also referred to as hegemonic masculinity (Thompson Jr and Pleck, 1986; Connell, 1987, 2020; Wedgwood et al., 2023). The link between adherence to dominance masculinity and male domination was first studied in an ethnographic analysis of male hierarchies in an Australian high school (Connell et al., 1982). The study of dominance masculinity has since gained prominence in a wide array of fields such as gender studies, sociology, psychology, medicine, and counseling.

masculinity.[3,4]

We integrated a tailored CMNI module into the 2022–2023 Life in Transition Survey (LiTS), a face-to-face, nationally representative survey conducted by the European Bank for Reconstruction and Development (EBRD) and the World Bank among more than 43,000 respondents across 43 countries in Europe, Asia, Middle East and Africa, which altogether count nearly one billion inhabitants. We focus on five core dimensions of dominance masculinity: the importance of winning, violence, help avoidance, control over women, and disdain for homosexuals. We link men's adherence to these dimensions of dominance masculinity to rich individual-level data on socio-demographics, economic choices, health behaviors and outcomes, as well as political attitudes. This allows us to contribute to, and connect with, several strands of the economics and social sciences literature.

Our first contribution is to expand the cross-cultural measurement of gender norms to norms about masculinity. Existing representative surveys, either for individual countries (like the *General Social Survey* or the *German Socio-Economic Panel*) or across countries (like the *World Values Survey*, the *International Social Survey*, and the *Demographic and Health Surveys*) routinely elicit attitudes about women's and men's relative roles and spheres of competence in society, i.e., norms about gender roles.[5] By extending the focus to masculinity, we address recent calls by policymakers and international organizations for a more comprehensive measurement of gender norms (OECD, 2021).

Armed with these new data, we provide the first systematic evidence on how adherence to dominance masculinity norms relates to norms about gender roles and how they respectively

[3]The CMNI is used widely in the psychology and public health literatures. As of August 27, 2024, the article introducing the CMNI, Mahalik et al. (2003), had 2,194 citations on Google Scholar. The CMNI was developed through a qualitative and quantitative process to identify the most prevalent set of norms and expectations of characteristically male behavior.

[4]Individual CMNI scores have been shown to consistently predict male behavior, notably in the physical and mental health domains (Mahalik and Rochlen, 2006; Wong et al., 2017), and to correlate highly with other normative measures of masculinity (Mahalik et al., 2003; Levant et al., 2010). A limitation, however, is that so far, most of the evidence comes from small-scale studies in the lab in developed countries.

[5]For example, these surveys often ask how acceptable it is for women to work outside the home and earn money, whether men should have priority over women for jobs, or whether women can be (good) business leaders or politicians. We include many of these questions in LiTS as well.

predict economic, social, and political outcomes. Our comparison delivers some intriguing heterogeneity across countries. While Western countries are far more progressive in their views about gender roles relative to all other countries in our sample, this is much less the case for dominance masculinity. Instead, men in Western countries fall somewhere in the middle of the distribution of adherence to dominance masculinity: less than men in the Middle East and Africa, but more than men in many countries of the former socialist bloc in South Eastern Europe and the Baltics. This provides the first hint of how masculinity norms are distinct from norms about gender roles. In fact, while men who adhere more to dominance masculinity also tend to display more conservative norms towards women, the raw correlation is just 0.29.[6] Individual covariates are also much weaker predictors of adherence to dominance masculinity norms compared with norms about gender roles. While age, education, and religiosity have a clear gradient as predictors of gender roles norms, with younger, more educated and less religious individuals being much more progressive, the same is not true for masculinity norms. Moreover, a clustering analysis reveals clear clusters consisting of "progressive" individuals (who reject both dominance masculinity and unequal gender roles), "traditional" individuals (who embrace both), but also a much larger intermediate cluster of individuals who embrace one while rejecting the other.

Masculinity norms and gender roles norms also contribute to economic, health, and political outcomes in profoundly different ways. Across countries, while more unequal views about gender roles are negatively associated with economic development—in line with a positive feedback between female empowerment and economic growth, e.g. Duflo (2012) and Jayachandran (2015)—stricter adherence to dominance masculinity norms is instead *positively* correlated with economic development as well as with economic inequality. Masculinity norms and norms about gender roles also relate to life expectancy gender gaps in opposite ways, a relationship partly explained by a strong and positive association between adherence to dominance masculinity norms and male suicide rates. Moving from the 10th to the 90th percentile

[6]Meanwhile, at the country level, the correlation coefficient between average dominance masculinity scores and average norms about gender roles is 0.52.

of average adherence to dominance masculinity norms at the country level, equivalent to moving from Montenegro to Algeria while keeping GDP per capita constant, is associated with an increase in the gender mortality gap by 21 percent and in the gender gap in suicide mortality rates by 50 percent. Across countries, we also document a strong, positive, and statistically significant relationship between the supply of populism by political parties in recent years and average adherence to dominance masculinity norms. This relationship is absent for norms about gender roles.

Our individual-level analysis unveils underlying explanations for these aggregate patterns and contributes to a rich literature on cultural norms as determinants of individual behavior and economic, social, and political outcomes.[7] We first uncover how dominance masculinity norms have equivocal implications for economic growth. Men who adhere strongly to such norms supply more labor at the intensive margin and are more competitive. While these behaviors may feed positively into economic growth, they may also sustain gender gaps in labor markets. After all, gender differences in the supply of long (and inflexible) working hours and in competitiveness are leading explanatory factors of economic gender gaps (Niederle and Vesterlund, 2011; Goldin, 2014, 2021). By contrast, individual attitudes towards gender roles are neither systematically associated with men's labor supply nor with their competitiveness. Consistent with work linking gender identity to occupational sorting between women and men (Akerlof and Kranton, 2000, 2010; Delfino, 2024; Baranov et al., 2023), we also document how dominance masculinity norms and unequal gender roles norms may generate frictions in the labor market by confining men to employment in traditionally masculine sectors.

Second, we document unambiguous negative consequences of dominance masculinity for individual men's health and wellbeing. Certain dimensions of dominance masculinity—such as emotional restraint, help avoidance, excessive risk taking, and aggression—have been hy-

[7] A large literature has established how the beliefs, traits, and values of social groups shape individual decision making and aggregate outcomes, ranging from fertility and trade to violence and political preferences. See Nunn (2012) and Alesina and Giuliano (2015) for reviews. We show how accounting for dominance masculinity can deepen our understanding of male decision making and related socio-economic and political outcomes, as well as gender inequality.

pothesized to constitute important cultural drivers of gender health gaps (WHO, 2013; Schanzenbach et al., 2016) as they are important risk factors in suicide, substance abuse, morbidity, and mortality (Case and Paxson, 2005; IHME, 2010; Baker et al., 2014). Accordingly, our analysis reveals that men who adhere more strongly to dominance masculinity norms take more risk—measured both through revealed (driving without a seatbelt) and stated preferences—and also have poorer mental health (as measured by the PHQ-4 scale). In contrast, attitudes towards gender roles neither have a consistent bearing on men's risk preferences nor on their physical and mental health behaviors and outcomes.

Third, consistent with commentary discussing potential links between masculinity and strongman populism and democratic backsliding (e.g. Blais and Dupuis-Déri 2012; Lombardo et al. 2021; Roose et al. 2022 and Washington Post, June 20, 2022), we show that men who adhere more strongly to dominance masculinity norms are, indeed, less pro-democracy, less pro-market, and more supportive of strongman leadership, including by the army. Traditional norms about gender roles play a less consistent role in explaining such political preferences.

Finally, we contribute to the literature on the persistence of cultural traits by exploring some of the deeply rooted determinants of masculinity norms.[8] In particular, in Appendix E, we show how individual men's adherence to dominance masculinity norms helps explain the relationship between historically male-biased sex ratios induced by convict transportation to Australia in the 18th and 19th century and present-day outcomes—including, as in the LiTS sample, labor supply at the intensive margin, depression, and healthcare avoidance.

Overall, we show how studying masculinity norms provides new insights into the roots and persistence of gender inequality. Although views about gender roles have become more equal, particularly in Western countries (Fernández et al., 2021), convergence towards gender equality has slowed or even stalled in recent decades. As women closed the gap and even surpassed men in formal education, while simultaneously strengthening their labor force participation during the 1970s and 1980s (Goldin, 2014, 2021), other drivers of unequal economic outcomes

[8]See Nunn (2012) and Alesina and Giuliano (2015) for literature reviews on the imprint of historical events on persistent cultural norms.

between women and men have become more important. These include gender norms as well as gender differences in traits and psychological dispositions, including preferences for competition and risk taking.[9]

While the economic literature has focused on norms about women, and about women's and men's relative position in society, our findings highlight the need to measure and understand the specific role of masculinity norms.[10] We show that adherence to dominance masculinity norms, and especially the importance given to winning, is a key driver of male risk taking and competitive preferences, while norms about gender roles play no, or an opposite, role. Given the documented socio-economic consequences of gender differences in risk and competitiveness preferences, these results illustrate how dominance masculinity norms may hinder further progress in gender equality. Our findings also echo concerns about dominance masculinity fueling a political backlash against feminism and liberal values (Blais and Dupuis-Déri, 2012; Roose et al., 2022). In organizations, too, excessively competitive behavior, "masculinity contests" (Berdahl et al., 2018), and harassment and violence against women (Folke and Rickne 2022 and Adams-Prassl et al. 2024)—arguably all manifestations of dominance masculinity—have been identified as major obstacles to women's progress and gender equality.

Our comprehensive cross-cultural data collection also allows us to complement the social psychology and sociology literatures that seek to understand the implications of masculinity norms for decision-making and societal outcomes. This literature has typically relied on highly selective samples, almost exclusively in Western countries.[11] Our analysis —which reveals

[9] See Bertrand (2011) and Niederle and Vesterlund (2011) for reviews.

[10] Exceptions are Baranov et al. (2023), who discuss the role of masculinity norms in explaining socioeconomic outcomes in Australia but do not directly measure masculinity norms, and Matavelli (2024), who shows how the lack of communication about masculinity among adolescent boys and girls in Brazil generates misperceptions of norms about appropriate male behavior in regards to crying, or resorting to violence. **?** shows that exposing experimental subjects to a statement about stereotypically gendered behaviors (either masculine or feminine) elicits riskier choices among men. Lastly, Brenøe et al. (2022) investigate the role of gender *identity*, showing that individuals who identify as more masculine exhibit higher risk tolerance, competitiveness, and overconfidence; however, they do not examine how individuals conceive masculine or feminine identities.

[11] A recent review documented that among 78 masculinity studies in psychology, 65 took place in the US, four in Australia, and three in Canada (Wong et al., 2017). An exception is Vandello et al. (2023), which documents precarious manhood beliefs—the idea that manhood is difficult to earn but easy to lose—across 62 countries, but does so in a selective sample of college students answering an online survey. Previous cross-cultural studies date back to the 1990's and were also undertaken among university students only (Williams and Best, 1990).

a consistent relationship between adherence to dominance masculinity norms and economic, health, and political outcomes across Europe, Central Asia, the Middle East, and Africa—not only provides the first evidence outside of such selective samples, but also validates the usefulness of the CMNI scale to meaningfully measure norms that correlate with behavioral manifestations of masculinity.

The paper proceeds as follows. Section 2 provides background on our measure of masculinity norms, after which Section 3 describes our country-level evidence. Section 4 then discusses individual-level evidence on dominance masculinity norms and their explanatory power for economic, health, and political outcomes. We provide more causal evidence drawing on Australia's colonial history in Section E of the Appendix. Section 5 concludes.

2 Eliciting Masculinity and Gender Roles Norms

This section provides information on the 2022–2023 Life in Transition Survey (LiTS) and on how this face-to-face survey elicits masculinity norms and norms about gender roles.

2.1 The Life in Transition Survey

The LiTS is a nationally representative sociodemographic survey of adults conducted jointly by the European Bank for Reconstruction and Development and the World Bank every four years since 2006. It is a repeated cross-section that, at its inception, took place in former Communist Europe and the former USSR, with some Western Europe comparator countries. It has since expanded to North Africa, the Middle East, and Sub-Saharan Africa (see Table B1 for a list of all 43 countries and national sample sizes).[12]

Survey respondents are drawn randomly via two-stage sampling, with probability proportional to size, and with census enumeration areas as Primary Sampling Units (PSUs) and households as secondary sampling units. The LiTS survey covers about 1,000 observations per coun-

[12] At the time of writing this draft, the data collection in Sub-Saharan Africa was ongoing.

try, and interviews are conducted face-to-face. The questionnaire contains rich modules on socioeconomic conditions, work choices, and societal and political attitudes. Table B2 presents descriptive statistics on key socio-demographics. The average respondent is 45 years old, and 58% of respondents are married. Most respondents have achieved secondary education (65%) and 21% have some tertiary education. The sample is religiously diverse, with 52% Christian, 37% Muslim, and 9% atheist.

We focus on the subsample of men since the questions about dominance masculinity norms have been constructed and validated to apply specifically to men. Men constitute 41.3% of the LiTS sample. They are similar to women in terms of average age, education, or religion (see Table B2). Men are more likely to be employed: 59% declare some paid work in the week preceding the interview, against 40% of women. There are also gender differences in employment sectors. Men are much more likely to be employed in construction compared to women (15% vs. 2%), while women are overrepresented among public sector employees (31% vs. 15%) and in retail trade (16% vs. 8%).[13]

2.2 Measuring Dominance Masculinity Norms in LiTS

The Conformity to Masculinity Norms Inventory. A key innovation of the 2022–2023 LiTS wave was the inclusion by the authors of specific questions to capture individual men's adherence to dominance masculinity norms. The *Conformity to Masculinity Norms Inventory* (hereafter, CMNI) is among the most widely used measures of masculinity norms in psychology (Mahalik et al., 2003). Questions in the CMNI were selected and validated through extensive focus groups, pilots, and clinical studies to arrive at a set of social norms that most distinctively applied to men. Answers to the CMNI have been shown to strongly predict other normative measures of masculinity, measures that assess conflict and stress associated with masculine norms, and men's attitudes toward psychological help-seeking and distress. Consequently, the CMNI has become a standard tool in clinical psychology and leading public health initiatives

[13] All employment differences are statistically significant at the 1% level.

around male mental health.

The CMNI measures the extent to which an individual man's preferences, beliefs, and actions conform to several masculinity norms.[14] It contains 22 questions that capture 11 distinct masculinity norms:[15] conformity to winning; conformity to emotional control; risk-taking; violence; dominance; playboy; self-reliance; primacy of work; power over women; disdain for homosexuals; and pursuit of status.[16]

Until recently, the CMNI had remained mostly a clinical or research tool used in small, non-representative samples from Western countries.[17] A first breakthrough came with the implementation of the CMNI in a nationally representative Australian survey of boys and men.[18] This *Ten to Men* survey also includes individual level data on health behaviors, physical and mental health outcomes, suicidal ideation and suicide attempts, and experiences of violence, including as perpetrators. This allowed for further validation of the CMNI with behavioral outcomes related to violence, risk taking, unhealthy behavior, suicidal tendencies, and help avoidance in a nationally representative sample.

Table B3 in the Appendix provides correlations between the overall CMNI-22 index, its 22 sub-dimensions, and health and violence outcomes. These correlations in the raw data confirm positive and significant relationships between individual CMNI scores and depression, suicide

[14]That is, the CMNI aims to gauge individuals' own adherence to these norms, not their (dis)agreement with them (Thompson Jr and Bennett, 2015).

[15]The 22 subitems were extracted from 144 original items following a factor analysis (Mahalik et al., 2003).

[16]*Conformity to Winning* relates to wanting to be admired and respected, successful/powerful/competitive, performing competently, and being physically adequate. *Conformity to Emotional Control* concerns measures of emotional restriction. *Risk-Taking* relates to measures of toughness and adventure. *Violence* relates to measures of toughness and violence. *Power Over Women* relates to anti-femininity and the subordination of women. *Dominance* relates to wanting to be admired and respected, tough, successful/powerful/competitive, and subordinating women. *Playboy* relates to adventure, anti-femininity, concealing emotions, and subordinating women. *Self-Reliance* relates to disconnecting from others, and in terms of disconnection as measured by the other masculinity scales, this should relate to emotional disconnection. *Primacy of Work* relates to being a breadwinner, enduring work like a machine, pursuing success, and experiencing conflict between work and family/school obligations. *Disdain for homosexuals* relates to anti-femininity and restricting one's affectionate behavior with other men. *Pursuit of Status* relates to being a breadwinner, admired and respected, successful/powerful/competitive, and performing well (Mahalik et al., 2003, p.14)).

[17]The CMNI is most widely used in the United States but has also been validated in countries like Canada (Jbilou et al., 2021), Australia (Pirkis et al., 2016), and Germany (Komlenac et al., 2023).

[18]Since 2010, the Australian government monitor male mental health through a national research initiative, known as *Ten to Men*. See https://aifs.gov.au/research_programs/ten-men.

attempts, and perpetrating domestic and sexual violence. The *Ten to Men* survey does not include any outcome in terms of political preferences, but it includes some economic outcomes. For example, Table B3 shows that men who score higher on the CMNI are willing to supply longer working hours.

Our survey therefore innovates by providing the first nationally representative, cross-country evidence using thoroughly-validated masculinity norm questions and expanding outcomes to include more varied economic, social, and political measures. To maintain a comprehensive measurement of socio-economic conditions and social and political attitudes within the constraints of costly face-to-face surveys, we had to limit the number of questions in the questionnaire. We chose the five questions (henceforth, CMNI-5) that correlated most strongly with the overall CMNI score in the *Ten to Men* survey.[19] The resulting module elicits men's adherence to dominance masculinity norms with the following questions:

"*Thinking about your own actions, feelings and beliefs, how much do you personally agree or disagree with each statement? There are no right or wrong answers—you should just give the responses that most accurately describe your personal actions, feelings and beliefs. It is best if you respond with your first impression when answering.*"

- "*Winning is the most important thing*" (Importance of winning)
- "*Sometimes violent action is necessary*" (Violence)
- "*It bothers me when I have to ask for help*" (Help avoidance)
- "*I love it when men are in charge of women*" (Control over women)
- "*It is important to me that people think I am heterosexual*" (Disdain for homosexuals)

Answers were provided on a four-point Likert scale, from 1 ("Strongly disagree") to 4 ("Strongly agree"), with the possibility of refusing to answer or answering "Don't know". We rescaled all

[19] As shown in Table B3, in the *Ten to Men* data, the resulting CMNI subscore has a correlation with the overall CMNI score of 0.76. It alone explains 57% of the variation in the total CMNI score. The raw correlations of the CMNI subscore with willingness to work more, masculine employment sector, suicide attempts and intimate partner violence are all statistically significant at the 1% level and similar in magnitude as the correlations of the CMNI overall scores and these outcomes.

responses so a higher score indicates stronger adherence to dominance masculinity norms (that is, more help avoidance, more importance of winning, more justification of violence, more control over women, and a stronger disdain for homosexuals).

To calculate the CMNI, we take the average across the five domains, creating a score ranging from one to four. We only average over non-missing answers and create dummy variables that indicate, for each question, whether the respondent provided an answer. The CMNI has a mean of 2.47 in the LiTS sample and a standard deviation of 0.64, comparable to a mean and standard deviation of 2.18 and 0.41 in the *Ten to Men* Australian survey. The dimensions with the highest mean in the LiTS sample are *help avoidance* (2.69) and the dimension with the lowest mean is *violence* (1.86)—see Table B4.

Data Quality and Sensitivity. Like all other questions in LiTS, the CMNI questions were back-translated,[20] validated by the contracted survey firm (IPSOS), their local in-country representatives, as well as EBRD local representatives in each country, and piloted in every country prior to survey implementation. Since the CMNI was developed in a Western country context, the question arises as to whether the scale is valid in the diverse group of countries we study. Piloting revealed that only in two cases, Algeria and West Bank & Gaza, one of the questions on the CMNI, the one related to homosexuality, was too sensitive. It consequently was dropped from the survey in those cases.

More generally, one way to gauge the extent to which questions challenged respondents is to examine non-response rates. Figure A1 in the Appendix provides non-response rates for each question across regions. The question with the highest response rate is the one related to help-seeking behavior. Non-response rates are lowest in Germany: around 2-3% across all questions. In North Africa, the Middle East and South Eastern Europe non-response rates

[20]Translations were managed by cApStAn and completed by professional translators who produced the first-line translations. They were then passed to verifiers who checked the work done by the translators and produced the first draft final translations. These translations were systematically reviewed by IPSOS and local country managers before passing them to EBRD. EBRD carried out their own review of the translations and flagged any concerns for verifiers to resolve. The translations were further tested during trainings and the pilots in every country before being fielded.

are also low, hovering below 5% for all questions except the one related to homosexuality. This question appears to be the most sensitive one, with non-response rates around 25% in Central Asia and 15% in North Africa (and 16.05%, on average, across the whole sample). To address potential issues related to the relatively high non-response rate for the "disdain for homosexuals" dimension of the CMNI-5 index, we also define a CMNI-4 scale that excludes this dimension.

2.3 Norms about Gender Roles and Women's Social Roles in LiTS

The LiTS survey also included questions about gender roles norms and attitudes towards women's social and economic roles and spheres of competence. These questions cover various domains, from household labor allocation to labor force participation and representation in politics. The questions were taken from standard questionnaires (e.g. the World Values Survey) and previous rounds of LiTS. Respondents were asked:

"*To what extent do you personally agree or disagree with the following statements?*"

- "*A woman should do most of the household chores even if the husband is not working*" (Division of household chores)
- "*Men should take as much responsibility as women for the home and children*" (Responsibility for the home)
- "*It is better for everyone involved if the man earns the money and the woman takes care of the home and children*" (Contribution to household income and household chores)
- "*Both the man and woman should contribute to household income*" (Contribution to household income)
- "*If a man and a woman have dinner together in a restaurant, the man should always pay the full bill*" (Roles in sharing bills)
- "*On the whole, men make better political leaders than women do*" (Political leadership)

- "*Women are as competent as men to be business executives*" (Business leadership skills)

Following the same approach as used to elicit the CMNI questions, participants provided answers on a four-point Likert scale from 1 ("Strongly disagree") to 4 ("Strongly agree"). We again recode answers so that a higher value indicates more unequal views about gender roles and stronger beliefs that women are not equal to men as political or business leaders. We build a summary *Traditional Gender Roles Norms Index* (hereafter, TGRI) as the mean of these variables over the seven questions, normalized on a 1-4 scale in order to be directly comparable to the CMNI. Among male respondents, the TGRI has a mean of 2.39 and a standard deviation of 0.46. This compares to a mean of 2.24 and a standard deviation of 0.49 among women (see Table B4). We further refine our measures by distinguishing an index of attitudes towards gender roles *per se* (items "Division of household chores" to "Roles in sharing bills") ("TGRI Gender Roles") vs. attitudes about women as equals to men in terms of competence at being political or business leaders (last two items) ("TGRI Women").

2.4 Dominance Masculinity Norms and Gender Roles Norms as Distinct Belief Sets

An important question is whether masculinity norms and norms about gender roles and gender equality are distinct sets of beliefs, which only partially overlap, or instead two sides of the same conceptual coin? To help answer that question, we first present in Figure 1 a pair-wise correlation matrix between the CMNI-5, the TGRI and their respective individual items. The correlation coefficients range from -0.13 to 0.95, with warmer shades indicating stronger positive correlations. We find that the CMNI-5 correlates only moderately with the TGRI ($\rho = 0.29$). The correlations of the two TGRI sub-indices (Gender Roles and Women) with the CMNI-5 are comparable (0.28 and 0.20). Since both these sub-indices also correlate strongly with the overall TGRI index (0.92 and 0.73, respectively) we only consider the overall TGRI henceforth and refer to TGRI answers as proxies for "gender roles norms".

Among the individual components of the CMNI, the "Control over Women" and "Importance of winning" dimensions correlate strongest with the overall TGRI, but with still moderate correlation coefficients of 0.29 and 0.23 respectively. The other masculinity dimensions correlate less strongly with attitudes towards gender roles, with "disdain for homosexuals" being the least strongly correlated dimension ($\rho = 0.06$). Likewise, the TGRI items related to the role of women inside the household are not always linked to a stricter adherence to dominance masculinity norms: while the dimensions "Women Take Care of Household" and "Household Chores" are modestly correlated with the CMNI-5, the correlation between the CMNI-5 and other TGRI items such as "Responsibility for the Home" or "Contribute to Household Income" is close to zero.

In contrast, the individual dimensions correlate reasonably strongly *within* their respective index. The Cronbach's alpha, a measure of reliability and consistency between items in a scale, is 0.62 for the CMNI-5 and 0.58 for the TGRI. These values reflect acceptable reliability, meaning that the items within each index cohesively measure the underlying construct of conformity to dominance masculinity norms or unequal gender roles norms, respectively. We also note that the CMNI-5 items are more related to each other compared to the TGRI items, as indicated by the higher average inter-item covariance 0.24 for the CMNI-5, compared to 0.12 for the TGRI.

Overall, the rather modest cross-correlation between the CMNI-5 and the TGRI suggests that, while masculinity norms and gender roles norms might be related, a substantial part of their variation remains unexplained by either one dimension taken individually. In other words, our data does not support the notion that unequal gender attitudes are a sufficient statistic for dominance masculinity norms.

To further illustrate and validate this point, we conduct a K-means cluster analysis as a data-driven approach to categorize men on the basis of the specific set of masculinity and gender roles norms they adhere to. K-means clustering is a type of unsupervised machine learning that has recently gained traction in economics to study empirical settings with latent heterogeneity (Bonhomme et al., 2022). We use it to ask the data whether clusters of "progressive" individ-

uals, defined as individuals with both low CMNI-5 and low TGRI scores and "conservative" individuals, defined as individuals with both high CMNI-5 and high TGRI, naturally emerge based solely on the individual dimensions of both indices, without relying on any demographic or socioeconomic variables.

We implement the K-means clustering as follows. First, we let the data cluster on the subcomponents of both the CMNI-5 and TGRI, forming three separate clusters within each country.[21] Second, we classify the country-specific clusters into three separate groups according to the averages for both the CMNI-5 and the TGRI within the cluster. Specifically, we label a cluster as progressive (conservative) if the within-cluster averages for both indices are 0.25 s.d. below (above) the CMNI-5 and TGRI cross-country averages. The rest of the clusters are labelled as intermediate ones. All countries have an intermediate cluster, but the existence of progressive and conservative clusters varies across the sample. Eighty five percent of countries have a conservative cluster, half have a progressive cluster, and 50% have both types.

Figure 2 presents the results of this clustering exercise. We plot the standardized CMNI-5 (x-axis) and TGRI (y-axis) scores within each cluster. Relatively progressive (grey circles) and conservative (grey squares) clusters account for 21% and 35% of the sample, respectively. The remaining 44% of respondents belong to intermediate clusters (blue triangles).[22] These intermediate clusters contain men who adhere strongly to dominance masculinity norms but are gender equal (or vice versa). This emphasizes that masculinity norms and general attitudes about gender equality and roles in society are distinct constructs that cannot be used interchangeably or viewed as completely overlapping. It underscores the importance of studying masculinity norms as a separate set of beliefs.

[21] As is customary in K-means cluster analysis, we first standardize all items within country to avoid arbitrary scaling effects (Everitt et al., 2011).

[22] The size of the circles, squares and triangles is proportional to the number of individuals in a cluster.

3 Country-Level Evidence

We now discuss cross-country patterns of dominance masculinity norms and how variation in these norms across countries relates to norms about gender roles and to basic economic, health, and political indicators.

3.1 Dominance Masculinity Norms versus Gender Roles Norms

Figure 3 plots the correlation between the CMNI and TGRI indices across countries. Dominance masculinity norms and norms about gender roles are positively correlated, but far from perfectly so, with a raw correlation of 0.52 across countries.

As shown in Appendix Figure A2, which breaks down this relationship for each dimension of the masculinity index, the overall correlation is primarily driven by the strong and positive link between unequal norms towards gender roles and the importance of winning (0.65). The least predictive dimensions are the justification of violence (0.31) and disdain for homosexuals (-0.22). These patterns remain when we consider the CMNI-4 or when we remove from the sample countries where the share of non-responses or refusals is higher than 20% (see Appendix Figure D2).

We investigate regional patterns further in Figure 4, which maps average values of the CMNI and the TGRI across the 43 LiTS countries. Moreover, Figure 5 plots the average values of the CMNI and TGRI across regions (left) and individual countries (right), ordered by CMNI aggregate scores. While Germany emerges as the country in which men have the most equal norms regarding gender roles, it is around the sample average in terms of men's adherence to dominance masculinity norms. Germany is not an outlier among Western countries. Its average score on the five CMNI dimensions (2.5) is only slightly lower than Greece's (2.56). Countries in North Africa, Sub-Saharan Africa, and the Middle East score highest both on the CMNI (with Benin, Ghana, and Tunisia scoring the highest on average on the CMNI) and the TGRI (with West Bank & Gaza, Algeria, and Jordan scoring highest on the TGRI). Men

in Slovenia, North Macedonia, and Kosovo adhere least strongly to dominance masculinity norms, while the countries with both the lowest adherence to masculinity norms and the most equal gender norms, on average, are Estonia and Slovenia.

These descriptive statistics confirm a large heterogeneity in adherence to dominance masculinity norms within regions. In this regard, Estonia and Slovenia stand in stark contrast with their neighbors, Latvia and Bosnia and Herzegovina, which are among the countries in the sample scoring highest on the CMNI. Lending credence to the quality of our data, these differences in our survey measures are reflected in aggregate feminicides statistics. Latvia is the European country with the highest rate of intentional feminicides, at 3.58 per 100,000 women in 2021, compared to an average of 1.09 in the European countries included in the LiTS sample and 0.57 in Estonia.[23,24]

After having established the distinction between dominance masculinity norms and gender roles norms, we now show that both sets of norms also relate very differently to various country-level indicators.

3.2 Correlations with Country-Level indicators

GDP Per Capita. The literature has long highlighted a negative feedback between unequal gender roles norms and economic development (see, for example, Duflo 2012). The right panel of Figure 6 confirms the presence of a strong, negative correlation between GDP per capita (PPP-adjusted) and unequal norms about gender roles. We show binscatter plots of the relationship between GDP per capita and either dominance masculinity norms (left) or norms about gender roles (right), partialling out the relationship with the other set of norms and controlling for continent fixed effects.[25] While the relationship between GDP and unequal norms

[23]Source: UN Office on Drugs and Crime's International Homicide Statistics database.

[24]These cultural differences coincide with linguistics (with Estonian being a Finnic language whereas Latvian is part of the Indo-European language family) as well as differences in religious composition between these pairs of neighboring countries.

[25]The binscatter methodology has recently received criticisms, see e.g. Cattaneo et al. (2024). Using the *binsreg* package instead of *binscatter* reveals identical patterns, as shown in Appendix Section C.

about gender roles is unambigiously negative, the correlation between GDP per capita and dominance masculinity norms is, instead, positive. The magnitudes are large. Countries at the 75th percentile of the distribution of average unequal gender roles norms (such as Senegal) have an average GDP per capita that is 70 percent lower than countries at the 25th percentile of the distribution (Kosovo). The same comparison for the distribution of dominance masculinity norms (such as Morocco vs. Albania) is associated with a 32 percent *higher* GDP per capita. In Section 4, we discuss within-country evidence on the ambivalent economic role of adherence to dominance masculinity norms that supports this aggregate relationship.

Inequality. Figure 7 again reveals deeply contrasting patterns in how dominance masculinity norms and gender roles norms relate to another macroeconomic outcome: income inequality. Inequality is proxied by the Gini coefficient, which measures inequality on a scale from 0 to 100, where higher values indicate higher inequality. The partial correlation plot, which accounts for the influence of gender roles norms and GDP per capita, reveals a positive correlation between adherence to dominance masculinity norms and aggregate inequality (although this correlation is not statistically significant). By contrast, countries with more unequal gender roles norms tend to be economically more equal. The magnitudes of these two opposite relationships are comparable and indicate a 11 to 13 percent difference in opposite directions between countries at the 75th vs. 25th percentiles of the distributions of the CMNI and the TGRI.

Life expectancy. Dominance masculinity is often discussed as conducive to excessive male risk-taking, emotional restraint, help avoidance, as well as depression and suicidal ideation. These behaviors have detrimental consequences for male health outcomes and shorten their lives. The negative relationship between adherence to dominance masculinity norms and male life expectancy is illustrated in Panel A of Figure 8. On the horizontal axis, we show the CMNI-5 masculinity index and on the vertical axis the difference between a country's male and female life expectancy (a negative number since women live longer lives on average). The panel on

the right does the same for the TGRI instead of the CMNI-5 index.

The relationship between the gender gap in life expectancy and dominance masculinity norms is negative (although not statistically significant), and goes in the opposite direction to the positive (and statistically significant) relationship with unequal gender roles norms (right panel).[26] These results suggest that men live even shorter lives compared to women in countries where men adhere more strongly to dominance masculinity norms, while they live relatively longer lives compared to women in countries that hold more unequal views about gender roles (indicating longer lives for men and/or shorter lives for women). The estimates indicate that a one standard deviation increase in the CMNI is associated with a reduction in male life expectancy (relative to women in the same country) by .48 years. Alternatively, they imply that comparing countries at the 75th vs. 25th percentile of the CMNI score (e.g. Morocco vs. Albania), while keeping GDP per capita constant, is associated with an 11 percent higher gender mortality gap.

Motivated by the literature on the link between dominance masculinity and male mental health (Pirkis et al., 2017; Coleman et al., 2020; King et al., 2020; River and Flood, 2021), Panel B of Figure 8 shows gender gaps specifically for mortality due to suicide. On average, men commit suicide at a higher rate compared to women (average gap: 12.8 per 100,000). Using the gender gap in suicide rates within each country, rather than absolute suicide rates, mitigates issues related to variations in the quality of health statistics and the reporting of suicide-related mortality across the countries in our sample. Consistent with a clinical literature highlighting negative consequences of dominance masculinity for male mental health, we observe a strong, positive, and statistically significant relationship between average CMNI scores and the difference between male and female suicide rates in a country. In contrast, the correlation between suicide gaps and unequal gender roles norms runs in the opposite direction and is statistically

[26] By looking at the gender gap in life expectancy within the same country, we hold constant the quality of the healthcare system and other institutional differences. As before, we also control for GDP per capita in PPP terms and the TGRI index. Moreover, we control here for cross-country variation in the population's age structure by including both the male and female shares of the population aged 18-25, 26-40, 41-60, 61-75 and +75 for the year 2021. Alternatively, one could control for age structure by including birth rates by historical cohort, but these data are only available for a small subset of countries.

insignificant. Specifically, comparing countries at the 75th vs. 25th percentiles of average dominance masculinity norms is associated with a 28 percent higher gender gap in suicide mortality.

Populism. The expansion of liberal democratic systems in the last decades of the 20th century went hand in hand with women's empowerment and gender equality. This progress, however, has come to a halt in recent years, with far-right populism gathering momentum in tandem with the progression of anti-feminism, anti-LGBTQ attitudes, and masculinist ideals.[27] The decline of democracy and civil liberties under Orban in Hungary, Duda in Poland, Putin in Russia, Bolsonaro in Brazil, and Trump in the United States has systematically been associated with the tendencies of these countries' leaders to emphasize masculinity in their politics. These leaders have all, in various degrees, endorsed aggression, justified violence, taken pride in controlling women, justified or endorsed anti-LGBTQ and anti-abortion legislation, and mocked or politicized preventative health measures during the COVID 19 pandemic (Lombardo et al., 2021; Roose et al., 2022; Ajzenman et al., 2023).

Figure 9 displays partial correlation plots of the supply of populism by political parties, coded in the V-Party dataset of the V-Dem institute (Lindberg et al., 2022). We use the variable that captures the extent to which representatives of each party use populist rhetoric, defined as anti-elite or "glorifying the ordinary people and identifying themselves as part of them" (variable $v2xpa_popul$), which we average across all parties active in each country since 2010. Figure 9 reveals a positive and statistically significant correlation between average CMNI scores and the supply of populism by political parties across countries. The underlying regression indicates that the populism index is 38 percent higher in countries at the 75th percentile of the average CMNI distribution vs. countries at the 25th percentile of the distribution. By contrast, the relationship with norms about gender roles (right) is close to zero.[28]

In summary, we observe substantial and robust correlations between the degree to which a country's male population adheres to norms of dominance masculinity and various broad

[27] Masculinism is the belief that men should have more rights, power, and opportunities than women in society.
[28] These relationships are robust to using other indices of populism, for example from the Manifesto project.

economic and political outcomes. Notably, these correlations are distinct from the correlations between these outcomes and views on gender equality and gender roles in society, and sometimes even run in the opposite direction.

4 Individual-Level Evidence

While suggestive, the empirical patterns documented so far could be driven by other covariates—such as education, religion, or omitted country-level institutional and cultural factors—which may influence both adherence to dominance masculinity norms and economic and political developments. We now turn to within-country, individual-level regression analyses to shed light on how individual characteristics correlate with masculinity norms, and on whether dominance masculinity norms still remain robust predictors of economic, health, and political decision-making once these individual characteristics, as well as country-level unobserved heterogeneity, are fully accounted for.

4.1 Empirical Specification

We estimate the following equation:

$$Y_{ic} = \alpha + \beta CMNI_{ic} + X_{ic}\Gamma + \delta_c + \varepsilon_{ic} \tag{1}$$

where Y_{ic} are economic, health, and political outcomes for male respondent i in country c; $CMNI_{ic}$ is i' CMNI score; X_{ic} are individual characteristics; and δ_c are country fixed effects.[29] We correct for heteroskedasticity and cluster standard errors at the country level.

A man's age and life stage may be major determinants of his adherence to and upholding of dominance masculinity norms (Connell, 2020). The strength of these norms, as well as the importance of particular dimensions of masculinity, may also systematically vary across ur-

[29] Table B5 defines the outcome variables and Table B2 presents summary statistics for all outcomes and control variables.

ban and rural areas because of differences in social structures and contexts (Silva, 2022). We therefore control for age and urban vs. rural location of the respondent in all specifications.

Education, religion, and religiosity are other important potential correlates of masculinity norms and of our outcomes of interest, especially across our religiously heterogeneous sample (Connell, 1989). After our baseline estimates with only age and location as controls, we therefore also show specifications that include education (primary, secondary, tertiary undergraduate level, tertiary graduate level) as well as religious denomination and religiosity in our extended set of controls. Lastly, to account for non-responses on some of the CMNI dimensions and for potential unobserved heterogeneity across respondents who do not answer specific subitems on the scale, we control in all specifications for a set of dummy variables that indicate whether the respondent answered each specific subdimension.

Dominance masculinity is relational, to other men but also to women. As such, it is instrumental to defining a hierarchy among men but also encompasses the subjugation of women. This raises the empirical concern that any relationship between the CMNI and outcomes of interest may capture the influence of gender roles norms, whose omission may hence bias our estimate of β in Equation (1). As previously discussed, the two sets of norms are only moderately correlated with one another. Nevertheless, in order to compare the relative influences of masculinity norms and gender roles norms, we systematically discuss estimations that regress outcomes on (i) masculinity norms alone; (ii) norms about gender roles alone; and (iii) masculinity norms while controlling for norms about gender roles. We start by discussing the roles of individual covariates as predictors of adherence to masculinity norms.

4.2 Correlates of Masculinity and Gender Roles Norms

To gauge the relationship between individual characteristics and men's adherence to dominance masculinity norms, and whether this relationship is similar to the one with gender roles norms, Figure 10 presents coefficient estimates from linear regressions of either the CMNI-5 or the TGRI index on a range of demographic and socioeconomic characteristics (while includ-

ing country fixed effects). Compared to the TGRI, the absolute coefficients for the CMNI are consistently smaller in magnitude and often indistinguishable from zero. This indicates that individual characteristics do not predict adherence to dominance masculinity norms to the same extent as they predict adherence to traditional gender role norms.

For example, while older individuals are clearly more conservative in terms of gender roles norms, adherence to dominance masculinity norms does not significantly vary by age cohort. Specifically, the TGRI in older age groups is between 0.11 and 0.19 s.d. higher than in respondents aged below 30, while the estimated coefficients for the CMNI-5 are statistically insignificant and close to zero. Likewise, while urban men tend to be less conservative in terms of gender roles norms than rural residents, there is no such difference in terms of their adherence to dominance masculinity norms.

More educated men tend to adhere less strongly to dominance masculinity norms and to be more progressive with respect to gender roles norms, but the gradient is noticeably flatter for masculinity norms compared with gender roles norms. While every additional education category is associated with a statistically significant lower TGRI, only a masters degree and above is statistically significantly associated with a lower CMNI (the excluded category is primary education or below). The magnitude of the coefficients for each education category is also much larger for the TGRI compared with the CMNI. For instance, the TGRI score for men with a graduate degree is 0.55 s.d. lower than that of men with at most a primary education. The equivalent difference for the CMNI is only 0.15 s.d.

Religion tends to be significantly associated with both masculinity and gender role norms. Muslim respondents have CMNI-5 and TGRI scores that are 0.16 and 0.40 standard deviations higher, respectively, than those who identify as atheist, agnostic, or who do not follow any religion. Catholics are also more likely to hold conservative views about gender roles compared to non-religious respondents, with a TGRI score 0.15 standard deviations higher, but they do not hold statistically different norms of dominance masculinity. Across all other religious groups, we generally find positive point estimates for both the CMNI-5 and the TGRI, although these

associations are not statistically significant.

Religious affiliation thus appears to be a less consistent and important predictor of dominance masculinity norms compared to gender role norms. The contrast is even more pronounced for religiosity. While religiosity is a strong and significant predictor of unequal gender role attitudes, it has no significant association with dominance masculinity norms. The coefficients for the importance of religion are positive, large, and statistically significant for gender role norms, but they are insignificant and near zero for dominance masculinity norms.

4.3 Economic Outcomes

A recent sociological literature describes work as an arena of "masculinity contests", emphasizing how a strive for dominance and winning may create hostile and excessively competitive work environments that, in particular, normalize very long working hours.[30] The prediction here is that dominance masculinity norms correlate positively with labor supply at the intensive margin. Separately, an economics literature has stressed how gender identity influences occupation and industry choice (Akerlof and Kranton, 2010), with masculinity norms contributing to male specialization in sectors such as agriculture, construction and manufacturing (Baranov et al., 2023). Such specialization can become a driver of unemployment when male-dominated industries are displaced or suffer negative economic shocks (Autor et al., 2019; Katz, 2014), implying an overall ambiguous relationship between masculinity norms and employment status.

To assess the relationship between individual adherence to dominance masculinity norms and the supply of male labor on the extensive margin, we estimate Equation (1), using as the dependent variable a dummy indicator for currently being employed.[31] Results are displayed in columns 1 (with the baseline set of controls) and 2 (with the extended controls) of Table 1 (Panel A). We find no statistically significant relationship between a respondent's CMNI score

[30] Berdahl et al. (2018) describe how dominance masculinity norms are pervasive in a wide range of leading companies, such as Uber, Fox News, the Weinstein Company, as well as in Silicon Valley.

[31] Appendix Table B includes details on each variable used in the analysis.

and employment status. Panels B and C show that a man's norms about gender roles are also uncorrelated with his labor market participation at the extensive margin.

In contrast with employment at the extensive margin, the relationship between adherence to dominance masculinity norms and on-the-job labor supply at the *intensive* margin is unambiguously positive. This is shown in columns 3 and 4 of Table 1, where the dependent variable consists in answers to a question on whether the respondent would like to work more in his current job, controlling for the baseline and for the extended set of controls (in columns 3 and 4, respectively). The question on willingness to work more is only asked of men that are currently employed, explaining why the number of observations drops in these specifications. Yet, the results show a positive, robust, and statistically significant (at the 1% level) relationship between individual labor supply at the intensive margin and CMNI scores (Panel A). By contrast, as shown in Panel B, norms about gender roles are not significantly associated with labor supply. Panel C confirms that the relationship between conformity to masculinity norms and labor supply at the intensive margin remains robust and unchanged in magnitude, even after controlling for norms about gender roles (themselves insignificant). The estimates indicate that a one standard deviation increase in the CMNI is associated with a 12% increase in the desire to work more at one's current job.

Following gender identity theories of occupational choice, columns 5 and 6 of Table 1 show that men who adhere more to dominance masculinity norms are more likely to be employed in a masculine sector (Agriculture, Forestry and Fishing; Mining; Construction; Manufacturing; Transportation and Public Utilities). While a respondent's unequal views on gender roles also correlate positively with being employed in these sectors (Panel B), the association between conformity to masculinity norms and employment in a masculine sector remains statistically significant when controlling for norms about gender roles (Panel C).

The economics literature suggests that a gender gap in competitiveness is an important driver of unequal gender outcomes in education, occupational choice, and labor market earn-

ings.[32] We test the relationship between adherence to dominance masculinity norms and competitiveness using a question that asks respondents "*how competitive* [they] *consider themselves to be*", with answers on a 1 to 10 scale. Answers to this question have been shown to robustly predict actual competitive choices in incentivized tasks (Dohmen et al. 2011; Buser et al. 2014)

The results in columns 7 and 8 provide some evidence that men who adhere more strongly to dominance masculinity norms are more competitive. While the relationship between masculinity norms and competitiveness falls short of statistical significance in Panel A, results in Panel B reveal an opposite and *negative* relationship between unequal views about gender roles and competitiveness. When considering masculinity norms and gender roles norms together (Panel C), we find that men who adhere more to dominance masculinity are more competitive—a relationship statistically significant at the 5% level in our fully controlled regression—but that men who hold more unequal views about gender roles are *less* competitive. The magnitudes of these two opposite relationships are comparable. Appendix Table D1 shows that these results are similar when using the CMNI-4 to measure dominance masculinity.

Table B7 breaks down these relationships across the different dimensions of the CMNI, controlling for individual characteristics and for men's norms about gender roles. "Importance of winning" is, consistently, the most robust predictor of economic outcomes across the three major dimensions of on-the-job labor supply, occupational choice, and competitiveness. A one standard deviation increase in "importance of winning" answers is associated with a 13% increase in the willingness to supply longer hours, a 4% increase in the probability of being employed in a stereotypically masculine sector, and a 0.05 standard deviation increase in competiveness (all relationships statistically significant). "Help avoidance" is significantly correlated with labor supply and occupational choice but not competitiveness; while "control over women" is significantly correlated with labor supply and competitiveness. "Violence" only plays a significant role as a predictor of on-the-job labor supply while "disdain for homosexuals" does not correlate with any outcome.

[32] See Bertrand (2011) and Niederle and Vesterlund (2011) for reviews and Reuben et al. (2017) and Cortés et al. (2023) for recent contributions.

4.4 Risk-Taking, Health Behaviors, and Mental Health

Dominance masculinity is often pointed out as a driver of excessive risk-taking, emotional restraint, and help avoidance behavior. Emotional restraint and help avoidance are contributing factors to depression and poor mental health, while risk-taking and help avoidance are associated with lower take up of preventative health measures, including routine doctors' visits (Dell et al., 1989; Springer and Mouzon, 2011; Baranov et al., 2023).

We measure risk-taking in LiTS through both stated and revealed preferences. We assess respondents' self-reported risk preferences with a standard question, which has been shown to correlate positively with risk-taking behavior in incentivized tasks and real-world risk taking Eckel (2019).[33] We also gauge revealed risk-taking by asking whether respondents usually wear a seatbelt in the car.[34]

We measure (under) investment in preventative health measures by asking whether respondents skipped a medical visit even after falling ill in the last two years. On average, 12% of men (s.d.: 0.33) skipped a medical visit. The shares are highest in the Middle East (highest in Jordan: 43.14%) and lowest in Poland (3.57%). Lastly, we assess mental health by including the standard PHQ4 questions—a valid ultra-brief tool for detecting both anxiety and depressive disorders—in the survey. These questions ask how often (from 1: never to 5: daily) respondents feel: (i) "anxious, nervous, or worried", (ii) "very sad", (iii) "depressed", and (iv) how often they have "little interest or pleasure doing things". We build a *Depression score* index as the sum of the responses to these questions. The mean is 2.21 (s.d.: 1.11). Average rates of mental distress are highest in the Middle East and North Africa (highest country-level average in Lebanon: 3.57) and lowest in Western Europe (lowest country-level average in Germany: 1.46).

Table 2 shows that adherence to dominance masculinity norms is positively, significantly, and robustly associated with all the (normalized) measures of revealed and stated risk-taking

[33] The question (which is also part of the *German Socio-Economic Panel*) asks "*Please rate your willingness to take risks, in general, on a scale from 1 to 10, where 1 means that you are not willing to take risks at all, and 10 means that you are very much willing to take risks.*" The average among men is 5.39 (s.d.: 2.91) and among women 4.64 (s.d.: 2.90).

[34] We assess seatbelt wearing by whether respondents usually wear a seatbelt, either as a driver (90%), passenger in the front seat (87%), or passenger in the back seat (41%) – see Table B2.

(columns 1 to 4) and depression (columns 7 and 8) but not with under-investment in preventative health (columns 5 and 6). In stark contrast, Panels B and C reveal an overall much weaker, and sometimes reversed, relationship with gender roles norms. Norms about gender roles appear significantly associated with depression on their own, but this relationship is much smaller in magnitude by about one half on their own, as shown in Panel B, and by about two thirds when masculinity norms are controlled for in Panel C. The point estimates associated with dominance masculinity norms remain statistically significant and unchanged in magnitude when gender roles norms are also accounted for in Panel C. In contrast with dominance masculinity norms, more unequal norms about gender roles are, if anything, *negatively* correlated with stated risk preferences. Appendix Table D2 show that the results are robust to using the CMNI-4 as our outcome variable.

Table B8 shows that all dimensions of the CMNI contribute to these results, albeit to different extents. Across all dimensions, help avoidance is the most robust and economically meaningful predictor of health and well-being related outcomes, correlating positively and significantly with stated and revealed risk-taking and positively with depression. All but one dimensions ("disdain for homosexuals") of dominance masculinity are significantly associated with depression. In terms of magnitude, "violence" is the strongest predictor of depression, followed by "control over women", "help avoidance", and "winning". 'Control over women" is also negatively and significantly associated with preventative health investments.

4.5 Politics

Many of the countries in our dataset, from the former Soviet Union to North Africa, underwent major political and economic transitions in recent times. Most of the respondents in our survey, or their parents, lived at some point under non-democratic regimes that practised a form of central economic planning. They experienced more or less violent major revolutionary events, transitions to market economies, and—albeit, for some, only short-lived—great advances in democratic freedoms. Many have experienced conflict, and several countries in the region

have also witnessed democratic backsliding in recent years, in particular Hungary under Viktor Orban and Russia under Vladimir Putin.

The LiTS survey includes a set of questions about individual support for democratic values, support for a market economy, and support for various dimensions of authoritarian leadership, including by the army (see Table B5 for variable descriptions). Panel A of Table 3 reveal clear negative relationships between adherence to dominance masculinity and support for liberal political and economic systems. Columns 1 to 4 show that men who adhere more to dominance masculinity are less supportive of a democratic system and a market economy. Instead, they are more supportive of strongman leadership and army rule (columns 5 to 8). All these results are statistically significant at the 1% level. The magnitudes are large, with a one standard deviation increase in adherence to the CMNI being associated with a 5 percentage point (pp) decrease in the support for a democratic regime, a 3.4 pp decrease in the support for a market economy, and a 3.0 to 3.8 p.p. increase for strongman leadership and army rule.

When considering the role of gender roles norms, either in isolation in Panel B or together with dominance masculinity in Panel C, we confirm previous scholarship and commentary discussing the political role of attitudes towards gender equality. Our results reveal clearly that both negative attitudes towards gender equality and adherence to dominance masculinity play a role in explaining anti-democratic attitudes and support for strongman leadership. This type of leadership often goes hand in hand with performative masculinity, which is displayed by populist leaders or embodied by the military (Lombardo et al., 2021). The results are consistent if we define masculinity using the 4-item CMNI (Appendix Table D3).

Teasing apart different dimensions of masculinity, Table B9 shows that violence, control over women, and importance of winning are the most important CMNI dimensions driving opposition to democracy and a market-based economy as well as support for strongman leadership and army rule. Help avoidance and disdain for homosexuals play a lesser role.

4.6 The Role of the CMNI across Regions

Figures A3 to A5 in the Appendix show the stability of the coefficients associated with the CMNI and the TGRI in predicting economics, health, and political choices and values across sub-regions in our sample. In economics decision-making, the CMNI explains occupational choice only in Western and Eastern Europe, but the coefficients for labor supply at the intensive margin and for competitiveness are generally positive across all sub-regions. In Sub-Saharan Africa, the CMNI is also positively and significantly associated with labor supply at the extensive margin. For health and politics, the coefficients associated with the CMNI are generally consistent across sub-regions, being positively and significantly associated with stated risk preferences and depression in all regions apart from North Africa. They are also positively associated with support for a strong leader and army rule, although not consistently so in Sub-Saharan Africa.

Overall, the stability of coefficients associated with the CMNI across the different sub-regions provides further validation of the CMNI as a relevant measure of dominance masculinity norms beyond Western samples. Despite some heterogeneity, reflecting varying national contexts, the CMNI consistently explains men's values and choices across the 43 countries and three continents in our sample. These findings align with the literature's accounts of dominance masculinity driving labor supply, competitiveness, risk-taking, depression, and anti-liberal political values.

5 Conclusion

This paper provides the first large-scale, cross-cultural, and nationally representative evidence on individual men's adherence to dominance masculinity norms and their relationship to male economic and health outcomes and political attitudes. The study draws on data from the 2022–2023 Life in Transition Survey (LiTS), which encompasses nearly 43 countries across three continents. In doing so, we have broken new ground by shifting the focus from traditional ex-

aminations of norms about gender equality and gender roles to a comprehensive exploration of the multifaceted influence of masculinity norms on male decision-making and various related outcomes at the societal level.

Integrating the Conformity to Masculinity Norms Inventory (CMNI) scale in our survey has created a reliable tool for measuring adherence to dominance masculinity norms. While prior studies have predominantly focused on selective Western samples, our analysis extends the understanding of dominance masculinity norms to a much broader context—demonstrating consistent relationships between masculinity norms and a battery of economic, health, and political outcomes. Our country-level analysis reveals an interesting contrast: while Western nations exhibit more progressive attitudes towards women compared to other countries, they are on par with much less economically and politically advanced economies when it comes to the prevalence of dominance masculinity norms among their male populations. We uncover a nuanced relationship between the intensity of dominance masculinity norms and aggregate outcomes in the economic, health and political domains. At the level of individual men, our results indicate that adherence to dominance masculinity norms shapes health and risk-taking behaviors; the supply of male labor at the intensive margin and in specific industries; as well as male support for strongman political leadership. Overall, our analysis reveals mixed results regarding the consequences of adherence to dominance masculinity norms. While there may be potential positive effects on economic growth through increased labor supply, the health and political implications are unambiguously negative.

By shifting the scope to masculinity norms, we hope to widen the ongoing discourse on gender equality. Our research suggests that entrenched masculinity norms, particularly those emphasizing the importance of winning, violence, help avoidance, and control over women, may impede further progress in achieving gender equality within countries and organizations, including those with relatively egalitarian norms concerning the role of women in society.

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Table 1: Dominance Masculinity (CMNI-5) and Gender Roles Norms – Economics

	Working		Would Work More		Masculine Sector		Competitiveness	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Masculinity Norms								
CMNI-5 Score	-0.002	0.001	0.021***	0.019***	0.023***	0.018**	0.021	0.030*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.017)	(0.016)
Mean of outcome	0.58	0.58	0.17	0.17	0.43	0.43	0.01	0.01
R-squared	0.14	0.15	0.11	0.11	0.06	0.10	0.11	0.14
Observations	15,974	15,974	9,231	9,231	9,231	9,231	15,974	15,974
Panel B: Gender Roles Norms								
TGRI Score	-0.003	0.005	0.004	0.000	0.043***	0.028***	-0.041***	-0.022
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.015)	(0.015)
Mean of outcome	0.58	0.58	0.17	0.17	0.43	0.43	0.00	0.00
R-squared	0.13	0.15	0.11	0.12	0.06	0.10	0.11	0.14
Observations	16,343	16,343	9,428	9,428	9,428	9,428	16,343	16,343
Panel C: Masculinity and Gender Roles Norms								
CMNI-5 Score	-0.001	0.001	0.020***	0.019***	0.013*	0.011*	0.033*	0.037**
	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.017)	(0.016)
TGRI Score	-0.002	0.006	-0.001	-0.004	0.039***	0.024***	-0.048***	-0.030**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.015)	(0.015)
Mean of outcome	0.58	0.58	0.17	0.17	0.43	0.43	0.01	0.01
R-squared	0.14	0.16	0.11	0.12	0.07	0.10	0.11	0.14
Observations	15,896	15,896	9,196	9,196	9,196	9,196	15,896	15,896
Country FEs	×	×	×	×	×	×	×	×
Age, Urban	×	×	×	×	×	×	×	×
Education, Religion, Religiosity		×		×		×		×

Notes: OLS regressions. An observation is an individual respondent in LiTS. The dependent variables *Working* (columns 1-2), *Would Work More* (columns 3-4), and *Masculine Sector* (columns 5-6) are defined as dummies equal 1 if the individual was working, would like to work more hours, and was employed in a masculine sector, respectively. *Competitiveness* (columns 7-8) was measured on a scale from 0 – "not competitive at all" to 10 – "very competitive", and is standardized. For more details on the definitions of the dependent variables, please refer to Table B5. The CMNI-5 and TGRI scores are standardized. Standard errors are clustered at the country level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: LiTS.

Table 2: Dominance Masculinity (CMNI-5) and Gender Roles Norms – Risk and Health

	Risk Taking		Uses Seatbelt		Skip Visit to Doctor		Depression Score	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Masculinity Norms								
CMNI-5 Score	0.048***	0.052***	-0.070***	-0.067***	0.008	0.007	0.105***	0.100***
	(0.015)	(0.015)	(0.014)	(0.014)	(0.005)	(0.005)	(0.018)	(0.018)
Mean of outcome	0.01	0.01	-0.00	-0.00	0.12	0.12	-0.00	-0.00
R-squared	0.10	0.11	0.21	0.21	0.08	0.09	0.26	0.27
Observations	15,889	15,889	15,452	15,452	15,974	15,974	15,738	15,738
Panel B: Gender Roles Norms								
TGRI Score	-0.011	0.001	-0.070***	-0.064***	0.001	-0.002	0.059***	0.049***
	(0.013)	(0.012)	(0.014)	(0.015)	(0.003)	(0.003)	(0.014)	(0.014)
Mean of outcome	0.00	0.00	-0.00	-0.00	0.12	0.12	-0.00	-0.00
R-squared	0.10	0.11	0.20	0.21	0.08	0.09	0.25	0.26
Observations	16,253	16,253	15,806	15,806	16,343	16,343	16,074	16,074
Panel C: Masculinity and Gender Roles Norms								
CMNI-5 Score	0.053***	0.055***	-0.057***	-0.056***	0.008	0.008	0.094***	0.092***
	(0.016)	(0.015)	(0.014)	(0.014)	(0.006)	(0.006)	(0.018)	(0.018)
TGRI Score	-0.024*	-0.013	-0.057***	-0.052***	-0.001	-0.004	0.036**	0.026*
	(0.012)	(0.012)	(0.014)	(0.015)	(0.004)	(0.004)	(0.014)	(0.014)
Mean of outcome	0.01	0.01	-0.00	-0.00	0.12	0.12	-0.00	-0.00
R-squared	0.10	0.11	0.21	0.21	0.09	0.09	0.26	0.27
Observations	15,815	15,815	15,378	15,378	15,896	15,896	15,677	15,677
Country FEs	×	×	×	×	×	×	×	×
Age, Urban	×	×	×	×	×	×	×	×
Education, Religion, Religiosity		×		×		×		×

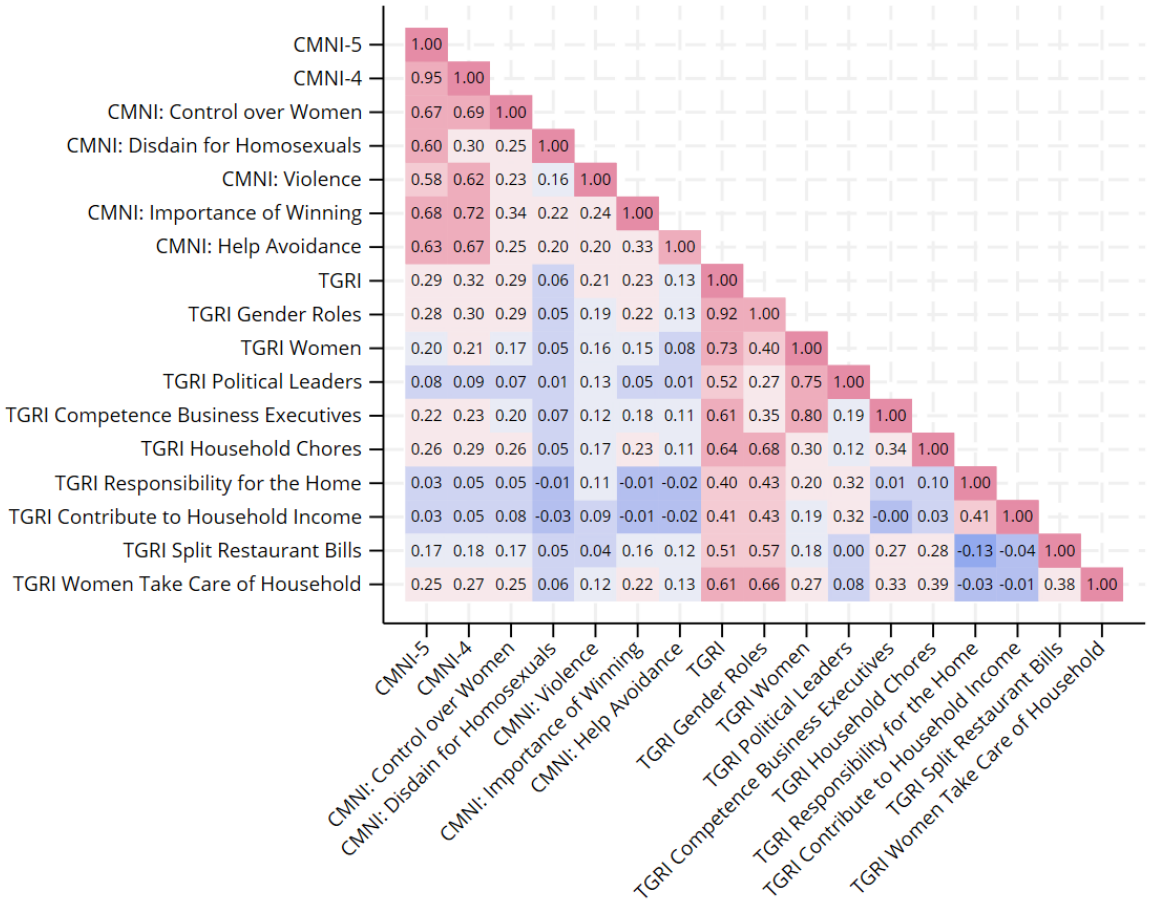
Note: OLS regressions. An observation is an individual respondent in LiTS. The dependent variable *Skip Visit to Doctor* (columns 5-6) is defined as a dummy equals 1 if the respondent answered they skipped a doctor's visit in case of a negative shock. The other outcome variables are standardized: *Risk Taking* (columns 1-2) was measured on a scale from 1 – "Not willing to take risk at all" to 10 – "Very much willing to take risk", *Uses Seatbelt* (columns 3-4) encompass the mean across three questions on whether the respondent uses seatbelt, and *Depression Score* (columns 7-8) encompass four questions that measure depression. For more details on the definitions of the dependent variables, please refer to Table B5. The CMNI-5 and TGRI scores are standardized. Standard errors are clustered at the country level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: LiTS.

Table 3: Dominance Masculinity (CMNI-5) and Gender Roles Norms – Politics

	Pro Democracy		Pro Market		Support for Strong Leader		Support for Army	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Masculinity Norms								
CMNI-5 Score	-0.050***	-0.047***	-0.034***	-0.031***	0.032***	0.030***	0.038***	0.036***
	(0.008)	(0.008)	(0.009)	(0.009)	(0.006)	(0.005)	(0.009)	(0.009)
Mean of outcome	0.59	0.59	0.44	0.44	0.47	0.47	0.33	0.33
R-squared	0.08	0.09	0.05	0.06	0.16	0.16	0.21	0.23
Observations	14,828	14,828	12,938	12,938	13,586	13,586	13,634	13,634
Panel B: Gender Roles Norms								
TGRI Score	-0.060***	-0.054***	-0.028**	-0.021*	0.036***	0.032***	0.039***	0.030***
	(0.008)	(0.008)	(0.012)	(0.012)	(0.007)	(0.007)	(0.008)	(0.008)
Mean of outcome	0.59	0.59	0.44	0.44	0.47	0.47	0.33	0.33
R-squared	0.08	0.09	0.05	0.06	0.17	0.17	0.22	0.23
Observations	15,134	15,134	13,234	13,234	13,856	13,856	13,908	13,908
Panel C: Masculinity and Gender Roles Norms								
CMNI-5 Score	-0.037***	-0.036***	-0.028***	-0.028***	0.024***	0.024***	0.029***	0.029***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.006)	(0.006)	(0.009)	(0.009)
TGRI Score	-0.050***	-0.044***	-0.020	-0.014	0.029***	0.025***	0.031***	0.022***
	(0.008)	(0.008)	(0.012)	(0.012)	(0.008)	(0.007)	(0.008)	(0.008)
Mean of outcome	0.59	0.59	0.44	0.44	0.47	0.47	0.33	0.33
R-squared	0.09	0.10	0.05	0.06	0.16	0.16	0.22	0.23
Observations	14,768	14,768	12,885	12,885	13,540	13,540	13,587	13,587
Country FEs	×	×	×	×	×	×	×	×
Age, Urban	×	×	×	×	×	×	×	×
Education, Religion, Religiosity		×		×		×		×

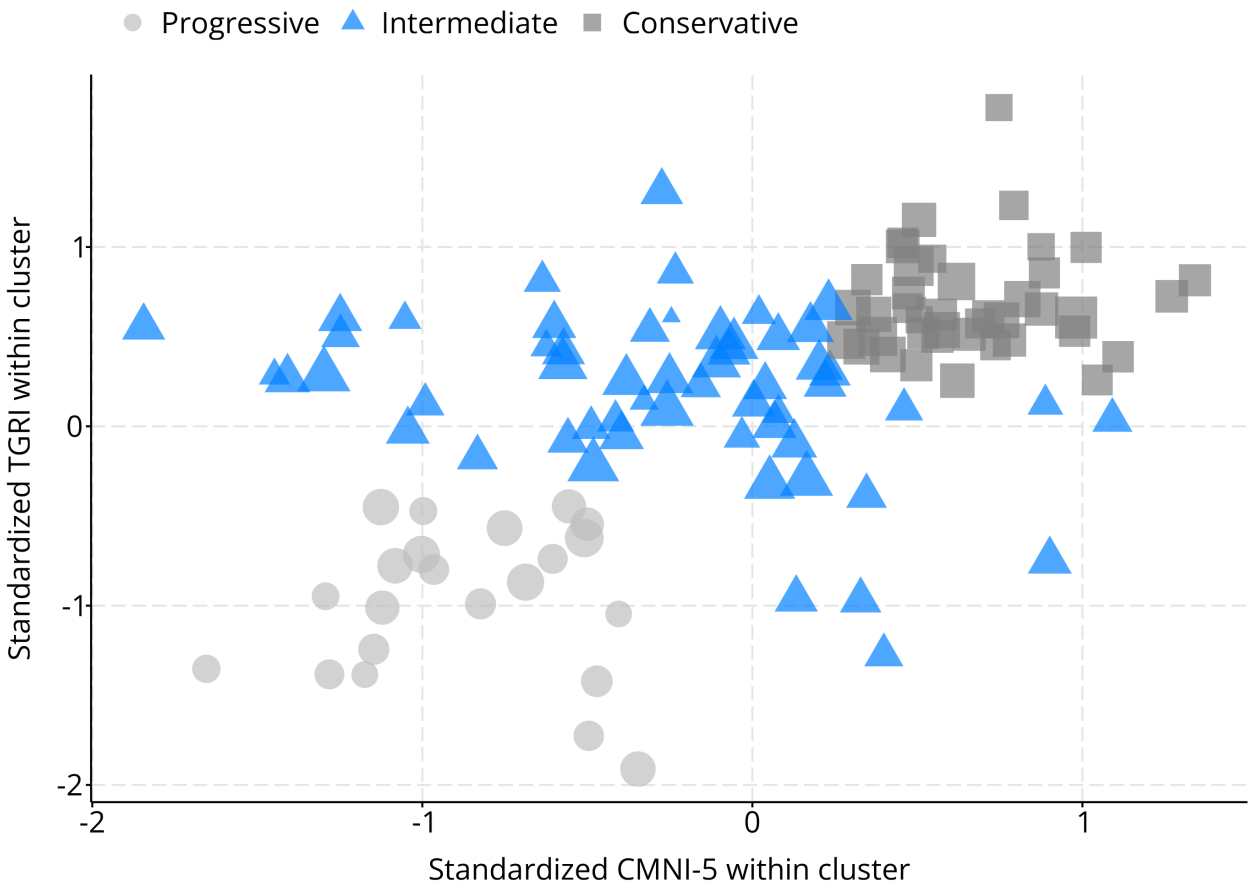
Note: OLS regressions. An observation is an individual respondent in LiTS. All dependent variables are defined as dummies equal to 1 if the respondent agrees that democracy is preferable to other political system (columns 1-2), if agrees that a market economy is preferable to any other economic system (column 3-4), if thinks that having a strong leader in power is fairly or very good (column 5-6), or if thinks that having the army rule is fairly or very good (columns 7-8). For more details on the definitions of the dependent variables, please refer to Table B5. The CMNI-5 and TGRI scores are standardized. Standard errors are clustered at the country level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: LiTS.

Figure 1: Correlation Matrix Between Dominance Masculinity and Gender Roles Norms



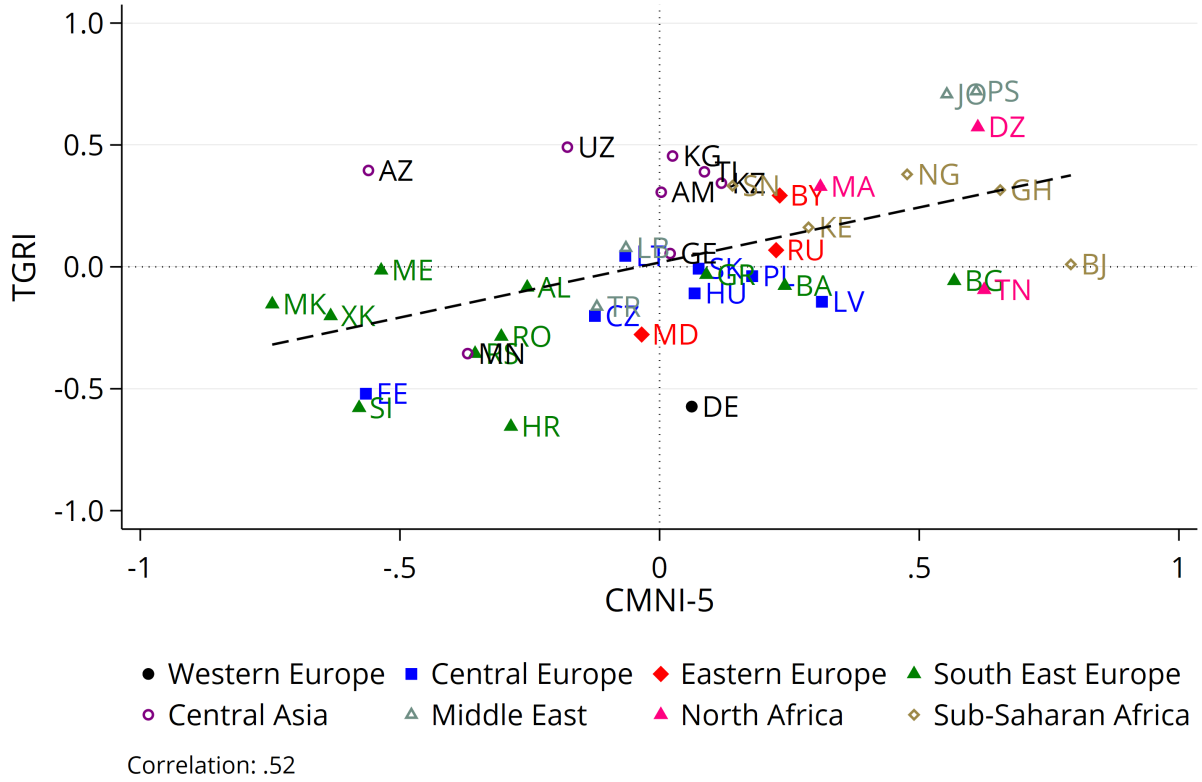
Notes: This figure displays the pair-wise individual correlation matrix between the five-item Conformity to Masculinity index (CMNI) and the Traditional Gender Roles Index (TGRI). Source: LiTS.

Figure 2: K-means Clustering Analysis



Notes: This figure shows the average standardized CMNI-5 and TGRI scores within each cluster generated from the K-means clustering analysis. The clustering is performed separately within each country using only the individual subcomponents of the CMNI-5 and the TGRI. The resulting clusters are then classified as "progressive", "conservative" or "intermediate" based on whether their average standardized CMNI-5 and TGRI scores fall below, above, or within 0.25 s.d. of the cross-country means, respectively. Source: LiTS.

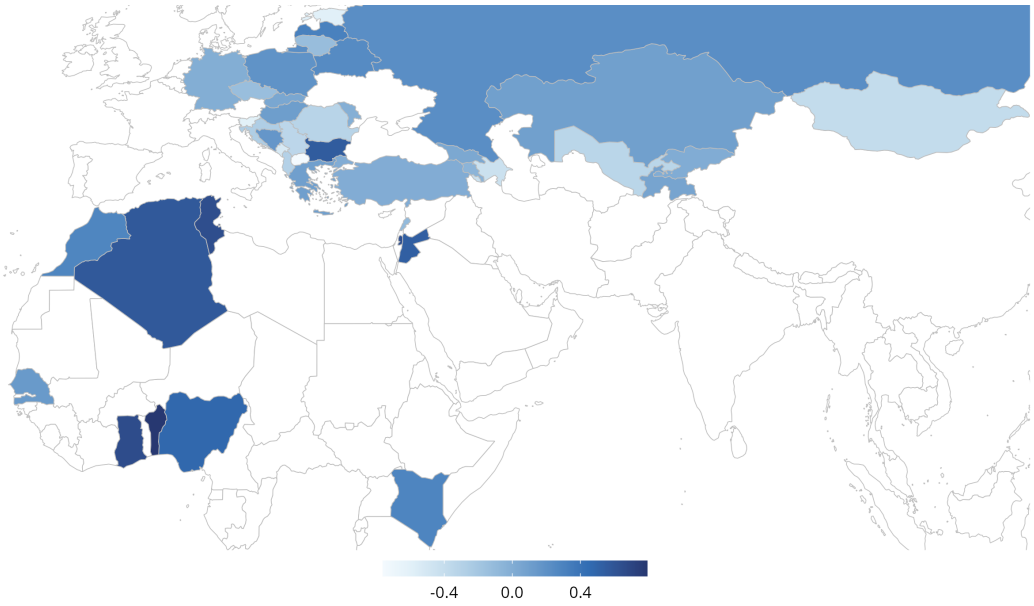
Figure 3: Cross-country Correlation Between Dominance Masculinity and Gender Roles Norms



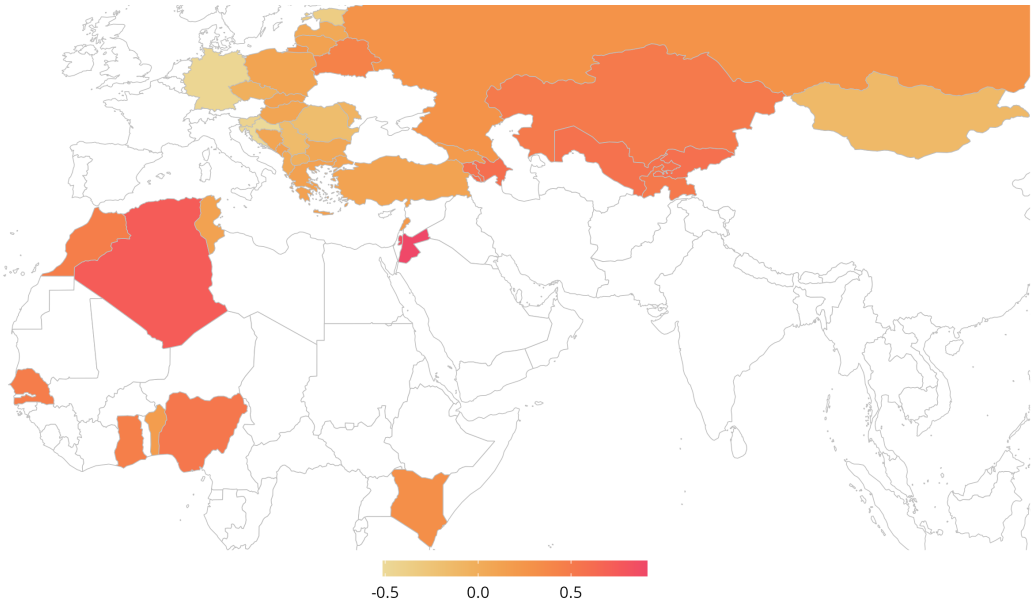
Notes: This figure displays a scatter plot and fitted linear regression of the five-item Conformity to Masculinity index (CMNI) and the Traditional Gender Roles Index (TGRI) across countries. Source: LiTS.

Figure 4: Dominance Masculinity Norms and Norms about Gender Roles across LiTS countries

Panel A: Masculinity Norms

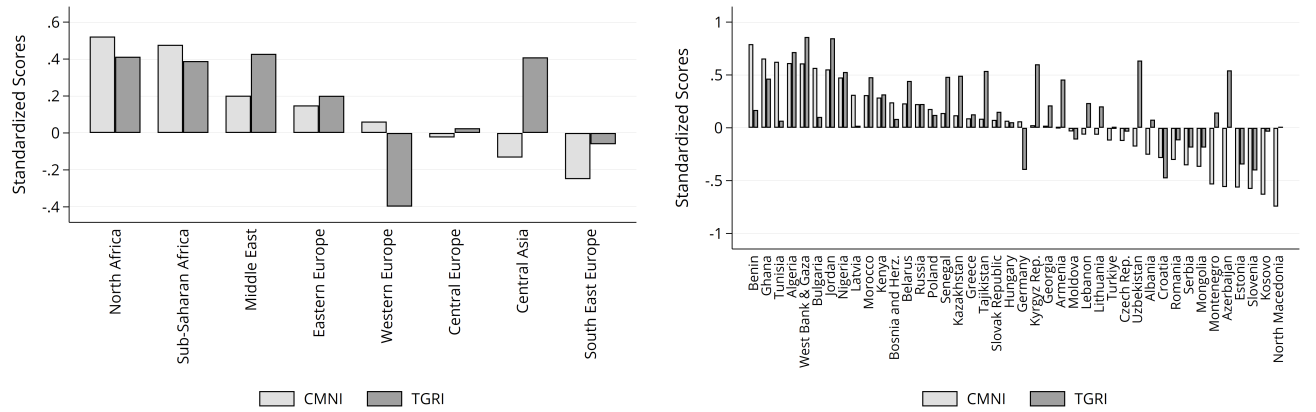


Panel B: Norms about Gender Roles



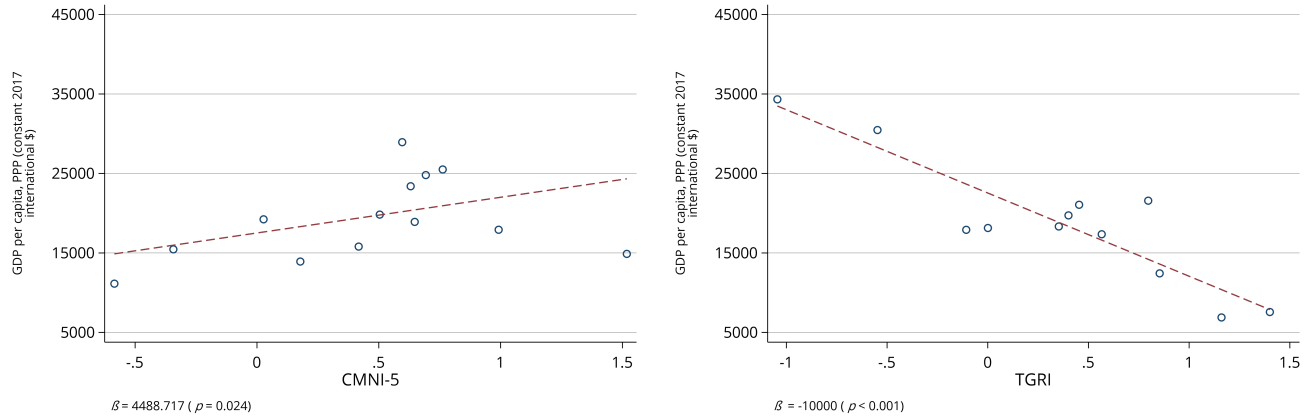
Notes: Panel A shows a map of the average five-item Conformity to Masculinity Norms Index (CMNI) across countries. A higher number indicates more conservative masculinity norms. Panel B shows a map of the average seven-item Traditional Gender Roles Norms Index (TGRI) across countries. A higher number indicates more conservative gender roles norms. Source: LiTS.

Figure 5: Dominance Masculinity Norms and Norms about Gender Roles Across Regions and Countries



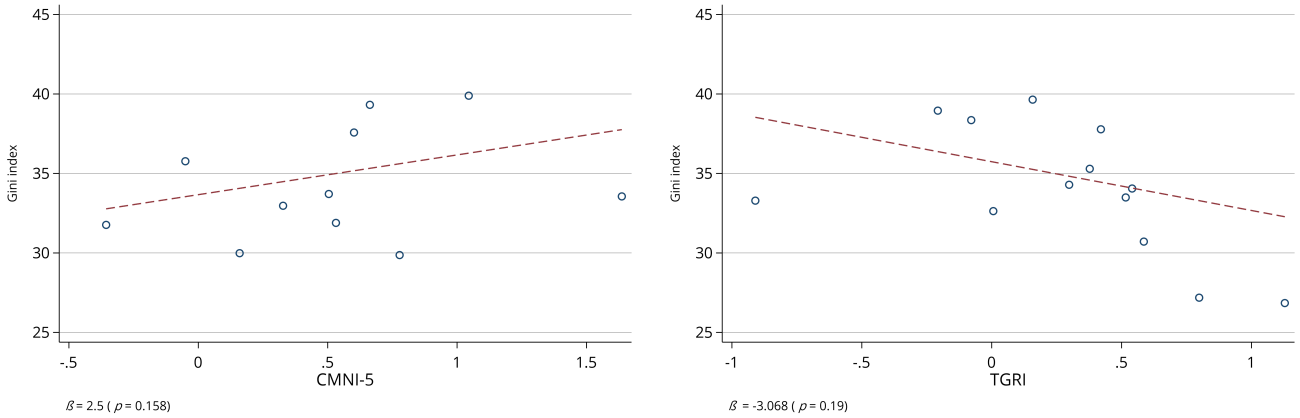
Notes: This figure displays the mean values of the Conformity to Masculinity Norms Index (CMNI) and the Traditional Gender Roles Index (TGRI) across regions (left) and countries (right). Higher scores indicate more conservative norms. Source: LiTS.

Figure 6: Dominance Masculinity Norms, Norms about Gender Roles, and GDP Per Capita



Notes: The left panel shows a binscatter plot of the country-level relationship between the latest available PPP adjusted GDP per capita and the standardized Conformity to Masculinity Norms Index (CMNI-5) once the influence of the Traditional Gender Roles Index (TGRI) is accounted for. The right panel shows the same for the TGRI after partialling out the CMNI-5. Both binscatters account for the influence of continent fixed effects (Europe, Asia and Africa). Source: World Bank and LiTS.

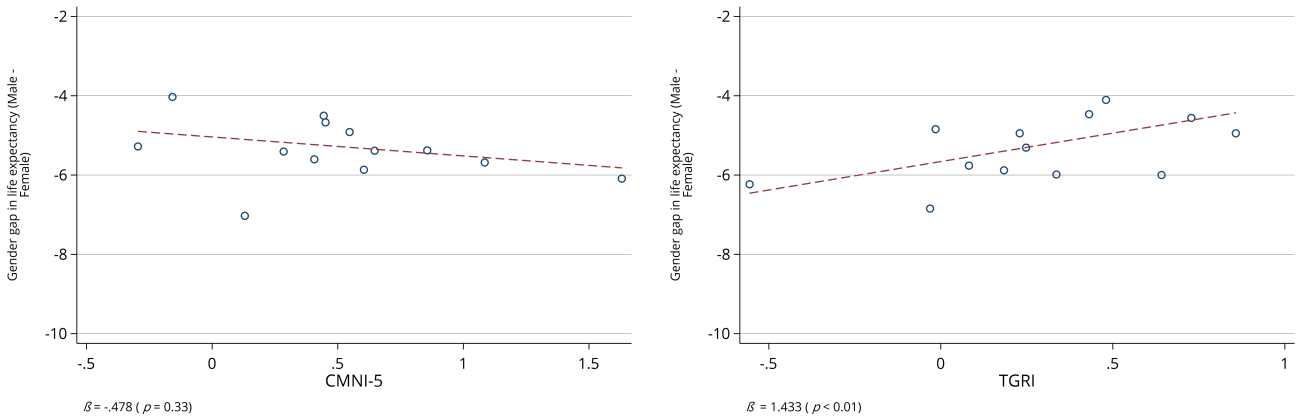
Figure 7: Dominance Masculinity Norms, Norms about Gender Roles, and Economic Inequality



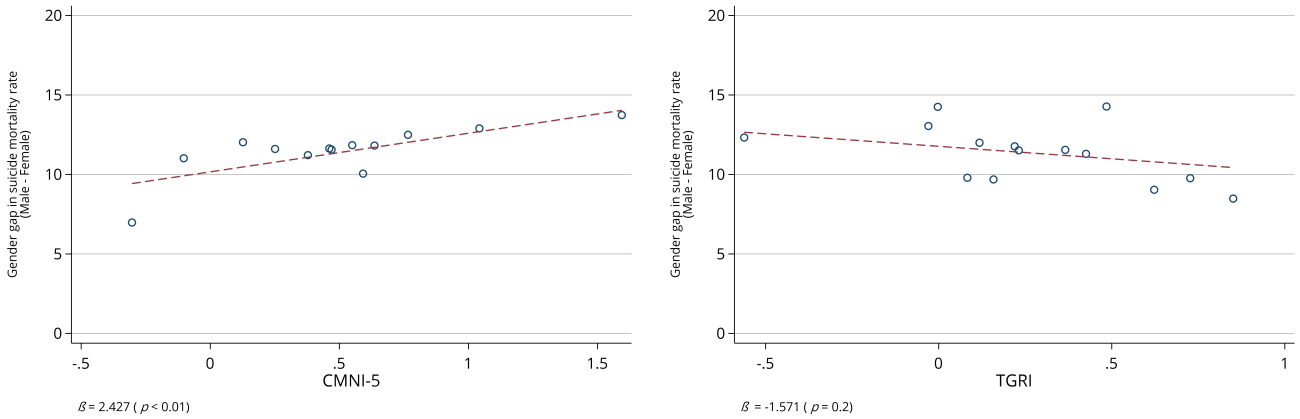
Notes: The left panel shows a binscatter plot of the country-level relationship between the latest available Gini index and the standardized Conformity to Masculinity Norms Index (CMNI-5) once the influence of the Traditional Gender Roles Index (TGRI) and PPP adjusted GDP per capita is accounted for. The right panel shows the same for the TGRI after partialling out the CMNI-5 and GDP per capita. Both binscatters account for the influence of continent fixed effects (Europe, Asia and Africa). The Gini index is a proxy for country-level income inequality. It ranges between 0 and 100, where higher values indicate higher inequality. Source: World Bank and LiTS.

Figure 8: Dominance Masculinity Norms, Norms about Gender Roles, and Male Life Expectancy

Panel A: Gender gap in life expectancy

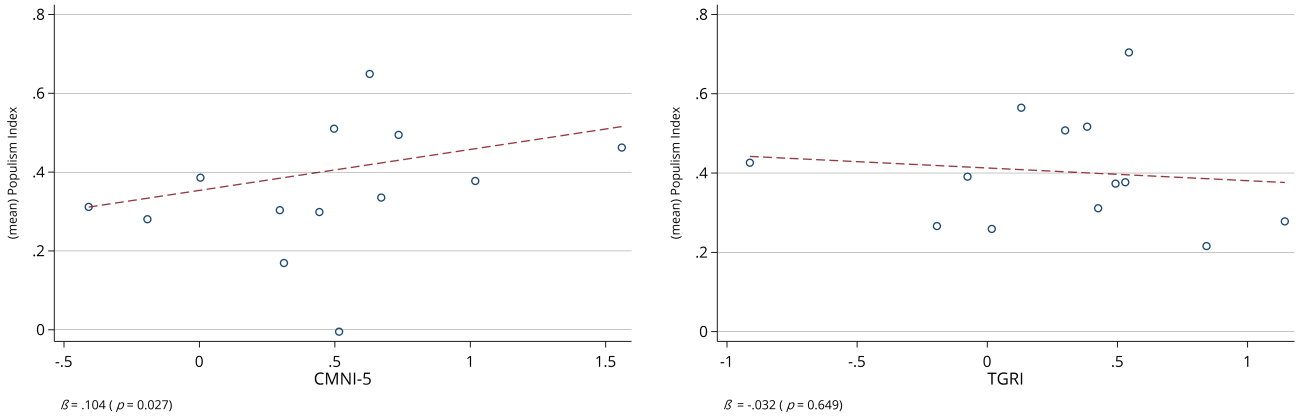


Panel B: Gender gap in suicide mortality rates



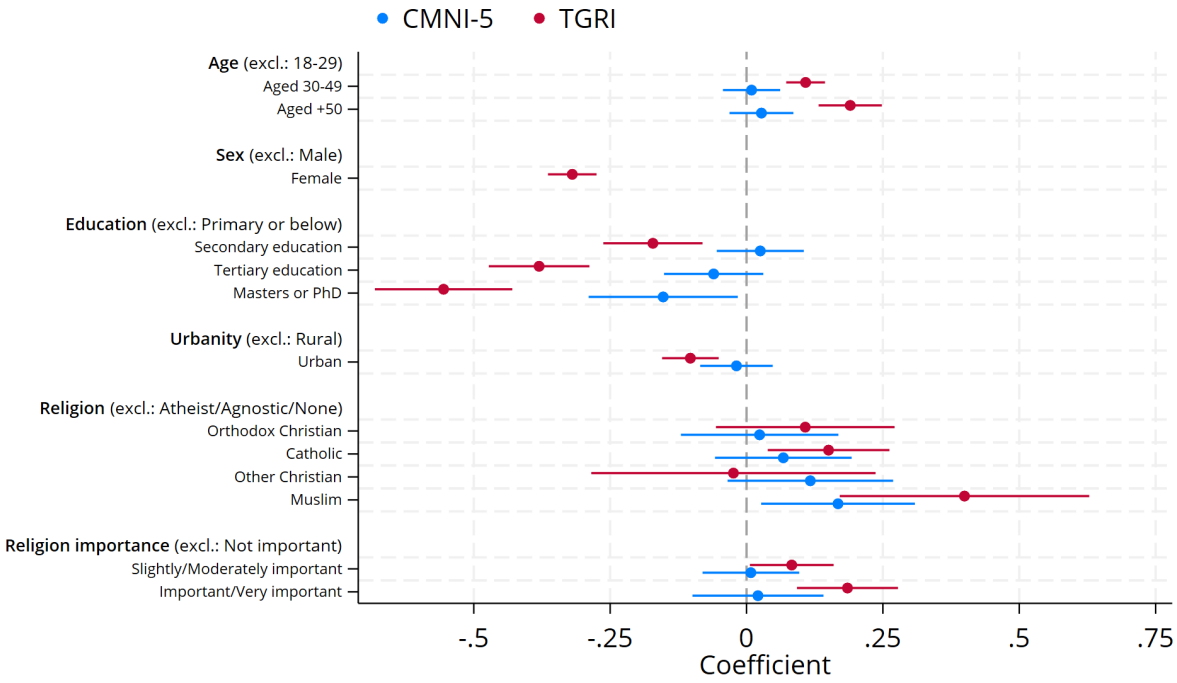
Notes: The left panel shows a binscatter plot of the country-level relationship between the latest available country-level male life expectancy and the standardized Conformity to Masculinity Norms Index (CMNI-5) once the influence of the Traditional Gender Roles Index (TGRI), PPP-adjusted GDP per capita, and population age structure is accounted for. The right panel shows the same for the TGRI after accounting for the CMNI-5, PPP-adjusted GDP per capita, and population age structure. Both binscatters account for the influence of continent fixed effects (Europe, Asia and Africa). Source: World Bank and LiTS.

Figure 9: Dominance Masculinity Norms, Norms about Gender Roles, and Supply of Populism



Notes: The left panel shows a binscatter plot of the country-level relationship between the Populism Index from the V-Dem Institute and the standardized Conformity to Masculinity Norms Index (CMNI-5) once the influence of the Traditional Gender Roles Index (TGRI) and PPP adjusted GDP per capita is accounted for. The right panel shows the same for the TGRI after partialling out the CMNI-5 and GDP per capita. Both binscatters account for the influence of continent fixed effects (Europe, Asia and Africa). Source: World Bank and LiTS.

Figure 10: Individual Correlates of Dominance Masculinity and Gender Roles Norms



Notes: This figure displays a coefficient plot showing the results from OLS regressions of the five-item Conformity to Masculinity Norms Index (CMNI) or the Traditional Gender Roles Index (TGRI) on a range of covariates including age group, sex, level of education, urbanity, religion, religiosity, and country fixed effects. Spikes show 95% confidence intervals based on standard errors clustered at the country level. Source: LiTS.

Online Appendix for

Masculinity Around the World

Ralph De Haas ⓡ Victoria Baranov ⓡ Ieda Matavelli ⓡ Pauline Grosjean

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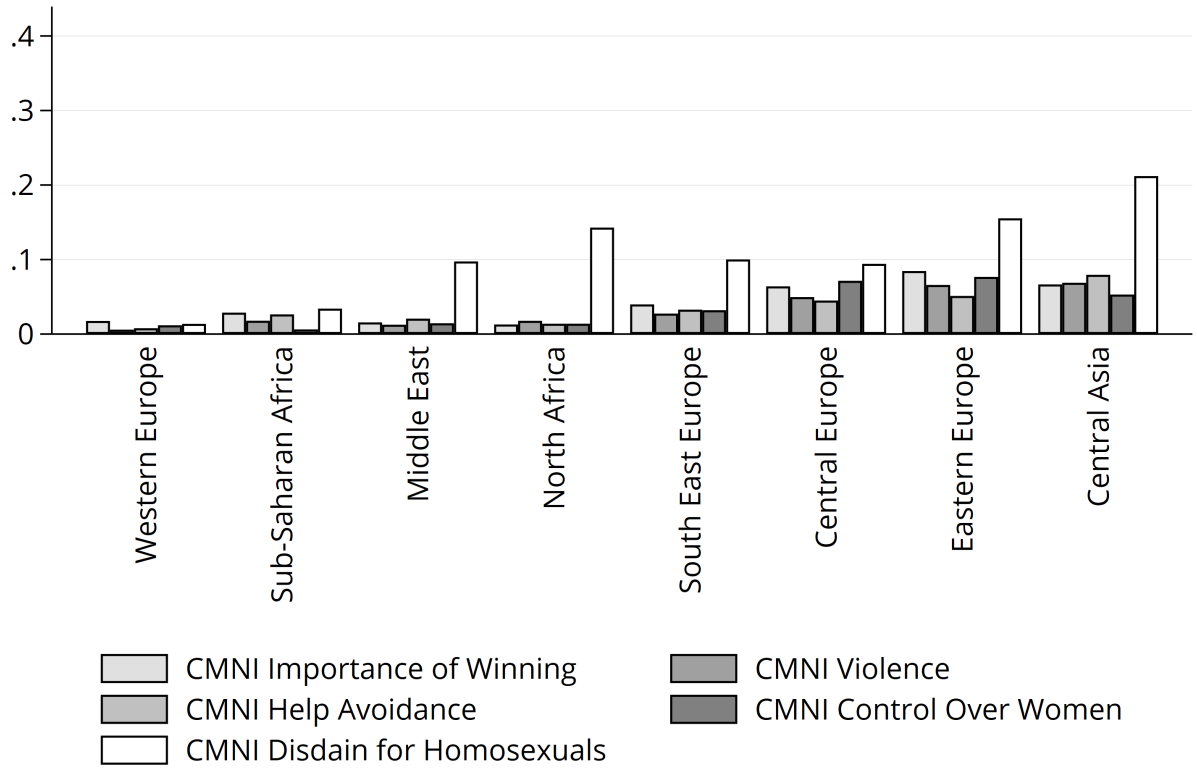
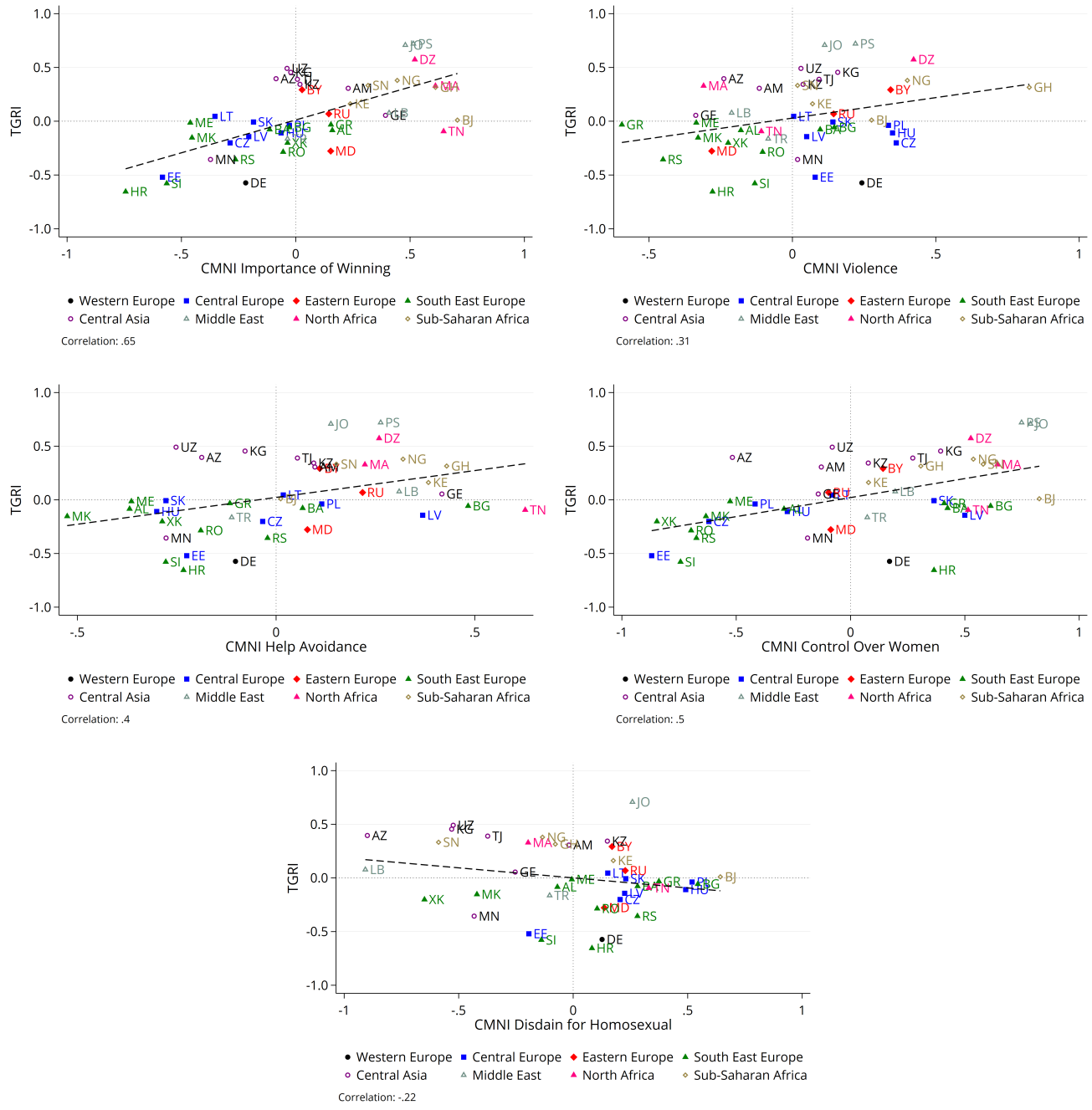
Online Appendix A: Supplementary Figures

Figure A1: Non-response rates across regions and CMNI questions



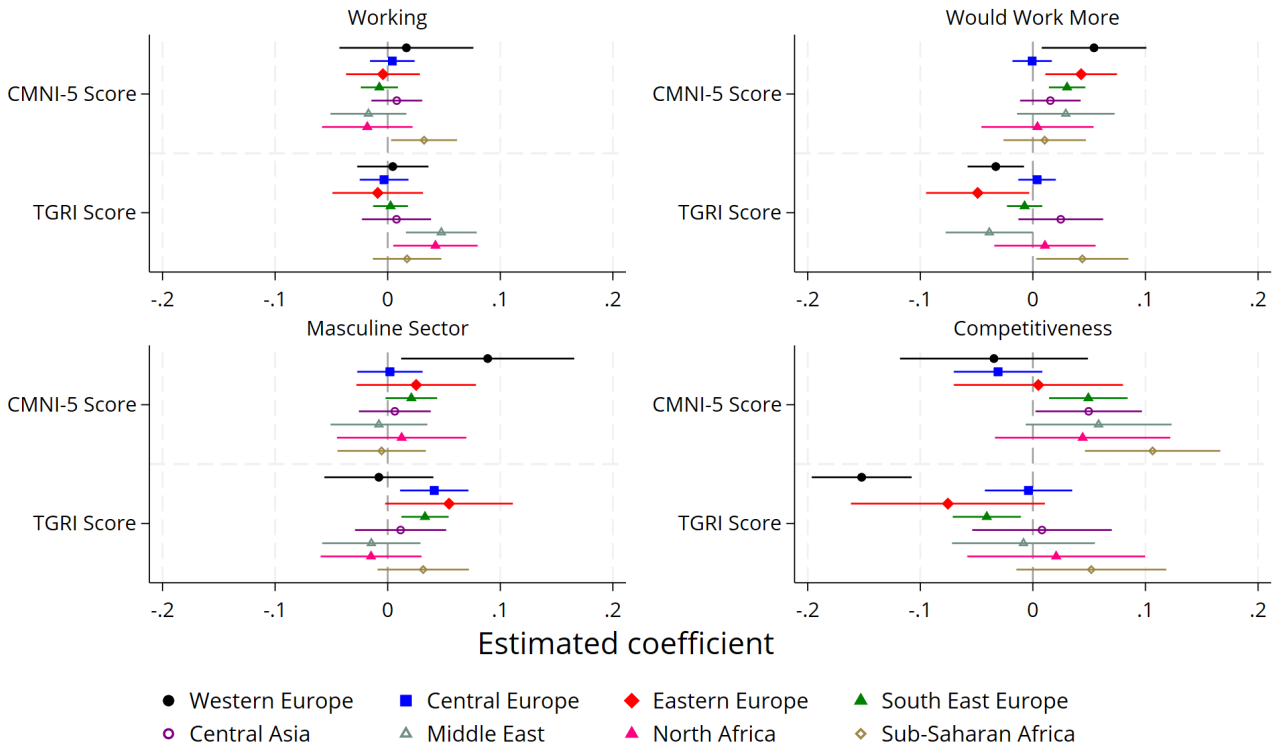
Notes: This figure displays the proportion of respondents (males only) across LiTS regions who refused to answer or answer they do not know to each item of the Conformity to Masculinity Norms Index. Source: LiTS.

Figure A2: Correlations Between Sub-dimensions of Dominance Masculinity and Gender Roles Norms, Across Countries



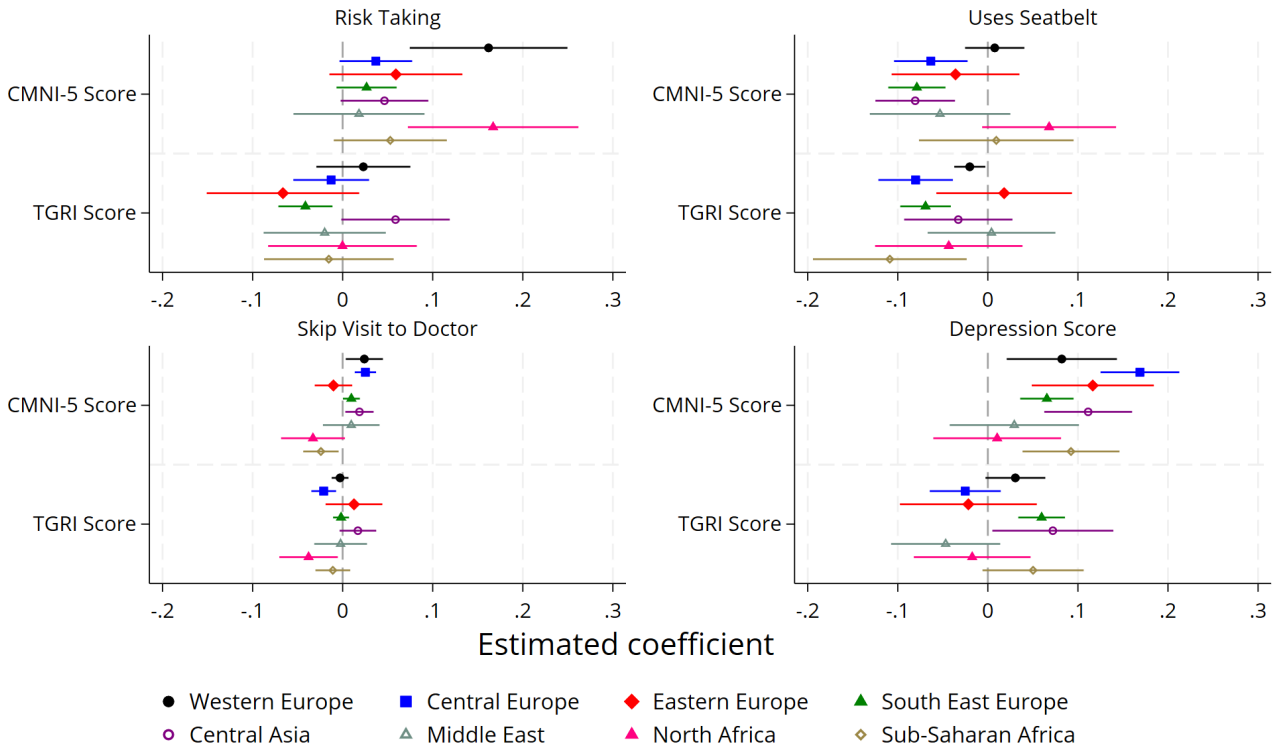
Notes: This figure displays scatter plots and fitted linear regressions of each subdimension of the CMNI and the Traditional Gender Roles Index (TGRI) across countries. Source: LITS. Sample of males only.

Figure A3: Dominance Masculinity (CMNI-5) and Gender Roles Norms by Region – Economics



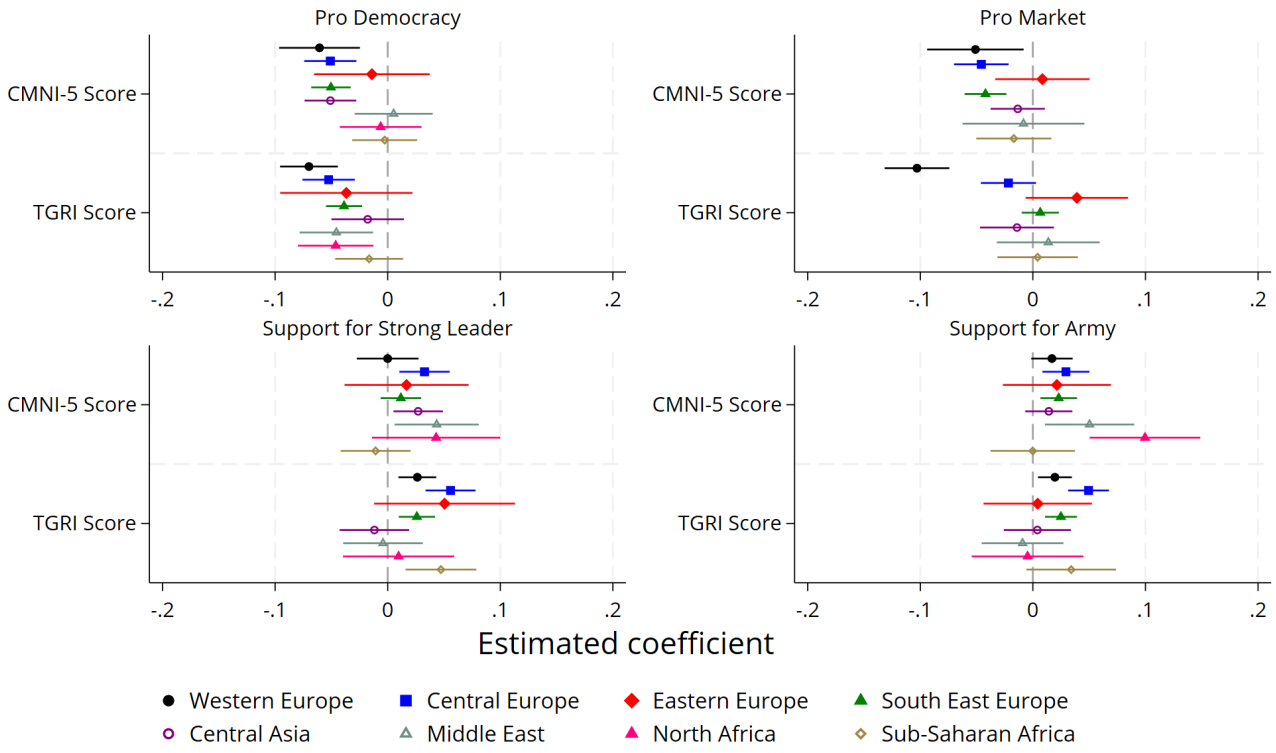
Notes: The dependent variables *Working*, *Would Work More*, and *Masculine Sector* are defined as dummies, whereas *Competitiveness* is standardized. See Table B5 for a more detailed description of the outcome variables. Spikes show 95% confidence intervals based on standard errors clustered at the country level. Source: LiTS.

Figure A4: Dominance Masculinity (CMNI-5) and Gender Roles Norms by Region – Risk and Health



Notes: The dependent variable *Skip Visit to Doctor* is defined as a dummy, whereas *Risk Taking*, *Uses Seatbelt* and *Depression Score* are standardized. See Table B5 for a more detailed description of the outcome variables. Spikes show 95% confidence intervals based on standard errors clustered at the country level. Source: LiTS.

Figure A5: Dominance Masculinity (CMNI-5) and Gender Roles Norms by Region – Politics



Notes: All dependent variables are defined as dummies. See Table B5 for a more detailed description of the outcome variables. Spikes show 95% confidence intervals based on standard errors clustered at the country level. Source: LiTS.

Online Appendix B: Supplementary Tables

Table B1: Country List and Sample Size (as of June 15, 2024)

Country Code	Country	Region	N (Total)	N (Men)
AL	Albania	South East Europe	1,039	472
DZ	Algeria	North Africa	1,000	352
AM	Armenia	Central Asia	1,001	315
AZ	Azerbaijan	Central Asia	1,012	482
BY	Belarus	Eastern Europe	1,002	393
BJ	Benin	Sub-Saharan Africa	421	250
BA	Bosnia and Herz.	South East Europe	1,003	502
BG	Bulgaria	South East Europe	1,008	415
HR	Croatia	South East Europe	1,006	426
CZ	Czech Rep.	Central Europe	1,055	527
EE	Estonia	Central Europe	1,009	415
GE	Georgia	Central Asia	1,003	315
DE	Germany	Western Europe	1,020	514
GH	Ghana	Sub-Saharan Africa	566	262
GR	Greece	South East Europe	1,001	451
HU	Hungary	Central Europe	1,000	409
JO	Jordan	Middle East	1,019	358
KZ	Kazakhstan	Central Asia	1,028	370
KE	Kenya	Sub-Saharan Africa	675	299
XK	Kosovo	South East Europe	1,004	425
KG	Kyrgyz Rep.	Central Asia	1,002	403
LV	Latvia	Central Europe	1,004	372
LB	Lebanon	Middle East	1,010	438
LT	Lithuania	Central Europe	1,005	452
MD	Moldova	Eastern Europe	1,002	327
MN	Mongolia	Central Asia	1,001	434
ME	Montenegro	South East Europe	1,006	444
MA	Morocco	North Africa	1,000	318
NG	Nigeria	Sub-Saharan Africa	530	274
MK	North Macedonia	South East Europe	1,002	411
PL	Poland	Central Europe	1,005	420
RO	Romania	South East Europe	1,010	470
RU	Russia	Eastern Europe	1,017	346
SN	Senegal	Sub-Saharan Africa	451	204
RS	Serbia	South East Europe	1,001	456
SK	Slovak Republic	Central Europe	1,002	462
SI	Slovenia	South East Europe	1,004	461
TJ	Tajikistan	Central Asia	1,034	337
TN	Tunisia	North Africa	1,036	364
TR	Turkey	Middle East	1,020	521
UZ	Uzbekistan	Central Asia	1,006	334
PS	West Bank and Gaza	Middle East	1,012	343
Total			40,032	16,543

Note: This table presents the list of countries and respective sample sizes (Total and Men only) included in LiTS.

Table B2: Summary Statistics - Demographics and Outcome Variables

	Full sample		Men			Women		
	Mean	SD	N	Mean	SD	N	Mean	SD
Age	45.19	17.25	16543	44.41	16.83	23489	45.90	17.58
Primary Education (=1)	0.09	0.29	16543	0.08	0.27	23489	0.11	0.31
Secondary Education (=1)	0.65	0.48	16543	0.67	0.47	23489	0.64	0.48
Tertiary Education (=1)	0.21	0.40	16543	0.20	0.40	23489	0.21	0.41
Household Income Decile	5.65	2.83	13776	5.92	2.81	19820	5.41	2.83
Single (=1)	0.24	0.43	16480	0.28	0.45	23392	0.20	0.40
Married (=1)	0.58	0.49	16480	0.62	0.49	23392	0.55	0.50
Widowed (=1)	0.09	0.29	16480	0.04	0.19	23392	0.14	0.35
Divorced (=1)	0.08	0.28	16480	0.06	0.23	23392	0.10	0.31
Orthodox (=1)	0.27	0.44	16001	0.26	0.44	22553	0.28	0.45
Catholic (=1)	0.17	0.37	16001	0.16	0.37	22553	0.17	0.38
Other Christian (=1)	0.08	0.26	16001	0.07	0.25	22553	0.08	0.28
Muslim (=1)	0.37	0.48	16001	0.38	0.49	22553	0.37	0.48
Atheist (=1)	0.09	0.28	16001	0.10	0.30	22553	0.08	0.26
Other Religion (=1)	0.03	0.17	16001	0.03	0.17	22553	0.03	0.17
Seatbelt in Front Seat (=1)	0.87	0.33	15882	0.87	0.34	22044	0.88	0.32
Seatbelt in Back Seat (=1)	0.41	0.49	15235	0.41	0.49	21399	0.42	0.49
Seatbelt in Driver Seat (=1)	0.88	0.33	13637	0.90	0.30	14047	0.85	0.36
Risk-Taking Self-Assessment (1-10)	5.00	2.93	16440	5.39	2.91	23256	4.64	2.90
Skips Doctor's Visit After Income Shock (=1)	0.14	0.34	16543	0.12	0.33	23489	0.15	0.35
Depression Score	2.32	1.12	16206	2.21	1.11	23119	2.42	1.13
Competitiveness Self-Assessment (0-10)	5.59	2.81	16543	5.94	2.75	23489	5.27	2.83
Would Like to Work More in Current Job (=1)	0.17	0.37	9523	0.18	0.38	9089	0.15	0.36
Working (=1)	0.49	0.50	16543	0.59	0.49	23489	0.40	0.49
Work Agriculture (=1)	0.06	0.23	9523	0.07	0.25	9089	0.04	0.19
Work Mining (=1)	0.01	0.08	9523	0.01	0.10	9089	0.00	0.04
Work Construction (=1)	0.10	0.29	9523	0.15	0.36	9089	0.02	0.14
Work Manufacturing (=1)	0.10	0.30	9523	0.11	0.32	9089	0.08	0.28
Work Transportation (=1)	0.06	0.24	9523	0.09	0.29	9089	0.02	0.14
Work Wholesale Trade (=1)	0.04	0.19	9523	0.04	0.19	9089	0.04	0.19
Work Retail Trade (=1)	0.12	0.32	9523	0.08	0.27	9089	0.16	0.37
Work Finance (=1)	0.03	0.18	9523	0.03	0.17	9089	0.04	0.20
Work Services (=1)	0.23	0.42	9523	0.22	0.42	9089	0.25	0.43
Work Public Sector (=1)	0.22	0.41	9523	0.15	0.35	9089	0.31	0.46
Pro-Democracy (=1)	0.57	0.50	15256	0.58	0.49	21101	0.55	0.50
Pro-Market (=1)	0.42	0.49	13353	0.44	0.50	17674	0.39	0.49
Having a Strong Leader is Good (=1)	0.49	0.50	13946	0.48	0.50	18592	0.49	0.50
Having the Army Rule is Good (=1)	0.35	0.48	14000	0.35	0.48	18463	0.36	0.48

Note: This table presents summary statistics (*mean* and *standard deviation*) for all the LiTS variable used in this paper, except the CMNI and TGRI indexes and subitems (see Table B4.). The table presents the statistics for the full LiTS sample, and separately for men and women.

Table B3: Correlations between CMNI and Outcome Variables from Ten to Men Survey

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Dep. Var.	CMNI-22	CMNI-5	Control Over Women	Disdain for Homosexuals	Violence	Importance of Winning	Help Avoidance	Working	Would Work More	Gendered sector	Masculine sector	Depression Score	Major Depression	Suicide Attempt	Doctor's Visit Pushed	IPV	Rape
CMNI	1.00																
CMNI-5	0.75*	1.00															
Control Over Women	0.47*	0.59*	1.00														
Disdain for Homosexuals	0.39*	0.59*	0.24*	1.00													
Violence	0.41*	0.55*	0.14*	0.06*	1.00												
Importance of Winning	0.49*	0.53*	0.24*	0.15*	0.09*	1.00											
Help Avoidance	0.35*	0.49*	0.09*	0.08*	0.11*	0.14*	1.00										
Wrking	-0.00	-0.01	0.01	-0.01	-0.04*	0.02	-0.00	1.00									
Would work more (=1)	0.08*	0.08*	0.04*	0.01	0.06*	0.04*	0.07*	-0.07*	1.00								
Gendered sector	0.09*	0.08*	0.06*	0.06*	0.01	0.04*	0.06*	0.01	-0.01	1.00							
Masculine sector	0.05*	0.07*	0.05*	0.07*	0.00	0.01	0.05*	0.00	-0.02	0.89*	1.00						
Depression Score	0.10*	0.14*	0.01	0.01	0.08*	-0.01	0.30*	-0.03*	0.12*	0.02	0.01	1.00					
Major Depression	0.04*	0.08*	-0.01	0.00	0.05*	-0.03*	0.19*	-0.04*	0.08*	0.01	-0.00	0.69*	1.00				
Suicide attempt	0.03*	0.05*	0.00	0.02	0.03*	-0.01	0.09*	-0.02	0.08*	0.01	0.01	0.25*	0.21*	1.00			
Doctor's visit pushed	0.16*	0.12*	0.05*	0.03*	0.04*	0.06*	0.16*	-0.00	0.04*	0.04*	0.02	0.15*	0.09*	0.03*	1.00		
IPV	-0.00	-0.01	0.02	-0.06*	0.01	-0.01	0.02	-0.01	0.00	-0.01	-0.00	0.04*	0.01	0.05*	0.00	1.00	
Rape	0.06*	0.07*	0.05*	0.02	0.04*	0.02	0.05*	-0.01	0.03*	0.01	0.01	0.05*	0.03*	0.05*	0.02	0.13*	1.00

Note: This table presents correlations between the CMNI-22, CMNI-5 and each of its 5 subitems as well as outcomes from the Ten to Men survey. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Source: Ten to Men

Table B4: Summary Statistics - Dominance Masculinity and Gender Roles Norms

	Full sample		Men			Women		
	Min	Max	N	Mean	SD	N	Mean	SD
CMNI Score (1-4)	1	4	15974	2.51	0.64	0	.	.
Masculinity Importance of Winning (1-4)	1	4	15239	2.62	0.99	0	.	.
Masculinity Violence (1-4)	1	4	15375	1.89	0.96	0	.	.
Masculinity Control Over Women (1-4)	1	4	15333	2.65	1.01	0	.	.
Masculinity Help Avoidance (1-4)	1	4	15328	2.72	0.97	0	.	.
Masculinity Disdain for Homosexuals (1-4)	1	4	13521	2.64	1.08	0	.	.
Traditional Gender Norms Index (TGRI) (1-4)	1	4	16343	2.39	0.46	23272	2.24	0.49
TGRI Competence Business Executives (1-4)	1	4	15965	1.97	0.83	22813	1.73	0.76
TGRI Political Leaders (1-4)	1	4	15741	2.74	0.92	22269	2.49	0.96
TGRI Household Chores (1-4)	1	4	15900	2.56	0.96	22857	2.39	1.00
TGRI Responsibility for the Home (1-4)	1	4	16019	1.82	0.76	22893	1.70	0.73
TGRI Contribute to Household Income (1-4)	1	4	15997	1.81	0.74	22816	1.72	0.71
TGRI Split Restaurant Bills (1-4)	1	4	15754	2.96	0.90	22374	2.93	0.93
TGRI Women Take Care of Household (1-4)	1	4	15745	2.87	0.92	22513	2.73	0.98

Note: This table presents summary statistics for the CMNI-5, TGRI, and their subitems based on LiTS, separately for men and women. Only men were asked the CMNI questions.

Table B5: Outcomes Description - LiTS

Domain	Variable Name	LiTS Question(s)	Variable Description
Economics	Working	= 1 if declared working positive hours, conditional on being employed	How many hours do you work in your main job during a typical week?
Economics	Would Work More	= 1 if would like to work more hours in main job	Would you like to work more hours in your main job? Answers: Yes or No
Economics	Masculine Sector	In which sector do you work in your main job? Answers: Agriculture, Forestry, and Fishing; Mining; Construction; Manufacturing; Transportation and Public Utilities; Wholesale Trade; Retail Trade; Finance, Insurance and Real State; Services; Public Sector	=1 if employed in *Agriculture, Forestry, and Fishing*, *Mining*, *Construction*, *Manufacturing* or *Transportation and Public utilities*
Economics	Competitiveness	How competitive do you consider yourself to be? Please choose a value on a scale of 0 to 10, where the value 0 means "not competitive at all" and the value 10 means "very competitive".	Answers coded from 0 to 10, standardized
Risk and Health	Uses Seatbelt	Do you normally wear a seatbelt in the car (a) if you are the driver; (b) if you are a passenger sitting in the front seat; (c) if you are a passenger sitting in the back seat?. Answers: Yes or No for each question.	Mean across the three LiTS questions that ask about seatbelt use, coded individually as =1 if they answer Yes, and 0 otherwise
Risk and Health	Risk Taking	Please rate your willingness to take risks, in general, on a scale from 1 to 10, where 1 means that you are not willing to take risks at all, and 10 and means that you are very much willing to take risks.	Self-assessed willingness to take risks
Risk and Health	Skip Visit to Doctor	In the past two years, have you or anyone else in your household had to take any of the following measures as the result of a decline in income or other economic difficulty? Please select all that apply. (a) Reduced consumption of staple foods such as milk, fruits, vegetables, or bread; (b) Reduced consumption of luxury goods; (c) Postponed or withdrew from university or other training; (d) Enrolled in further education because of lack of job opportunities; (e) Postponed or skipped visits to the doctor after falling ill; (f) Stopped buying regular medications; (g) Stopped or reduced help to friends or relatives who you helped before; (h) Delayed payments on utilities, gas, water, electric; (i) Had utilities cut because of delayed payment; (j) Cut TV or phone or internet service; (k) Delayed or defaulted on a loan installment; (l) Sold an asset or forced to move	= 1 if postpones or skips visits to the doctor in the face of a negative economic shock
Risk and Health	Depression Score	How often, if at all, do the following apply to you? (a) You feel very anxious, nervous, or worried; (b) You feel very sad; (c) You feel depressed; (d) You have little interest or pleasure in doing things. Answers: Never, A few times a year, Monthly, Weekly, Daily.	Mean across the four LiTS questions on mental health, coded on a Likert scale from 1 to 5, meaning the larger the score, the more depressed
Politics	Pro-Democracy	Which one of the following statements do you agree with most? Answers: Democracy is preferable to any other form of political system; Under some circumstances, an authoritarian government may be preferable to a democratic one; For people like me, it does not matter whether a government is democratic or authoritarian	= 1 if agrees that *Democracy is preferable to any other form of political system*
Politics	Pro-Market	A market economy is preferable to any other form of economic system; Under some circumstances, a planned economy may be preferable to a market economy; For people like me, it does not matter whether the economic system is organised as a market economy or as a planned economy	= 1 if agrees that *A market economy is preferable to any other form of economic system*
Politics	Support for Strong Leader	I am going to describe various types of political systems and ask what you think about each as a way of governing [COUNTRY]. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing [COUNTRY]? (a) Having a strong leader who does not have to bother with parliament and elections	= 1 if thinks that *Having a strong leader who does not have to bother with parliament and elections* is fairly or very good for their country
Politics	Support for Army	I am going to describe various types of political systems and ask what you think about each as a way of governing [COUNTRY]. For each one, would you say it is a very good, fairly good, fairly bad or very bad way of governing [COUNTRY]? (c) Having the army rule	= 1 if thinks that *Having the army rule* is fairly or very good for their country

Note: This table presents a description of the outcome variables from LiTS used for the main analysis in this paper, for each of the *Economics*, *Risk and Health*, and *Politics* domains.

Table B6: CMNI and TGRI Correlates

	CMNI-5 Score	CMNI Winning	CMNI Violence	CMNI Help Avoidance	CMNI Control Over Women	CMNI Against Homosexuals	TGRI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age	0.00	-0.00	-0.00	0.00***	0.00*	-0.00	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Urban (=1)	-0.02	-0.01	0.00	-0.02	-0.02	0.02	-0.10***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
Secondary Education (=1)	0.03	-0.04	0.02	0.10**	-0.02	0.04	-0.07
	(0.04)	(0.03)	(0.05)	(0.04)	(0.04)	(0.07)	(0.05)
Tertiary Education/BA (=1)	-0.05	-0.13***	-0.06	0.08	-0.10**	0.01	-0.25***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.08)	(0.05)
PhD (=1)	-0.15**	-0.23***	-0.14*	0.01	-0.15**	0.01	-0.45***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)	(0.08)	(0.07)
Other Christian (=1)	0.11	-0.02	0.06	0.06	0.07	0.18**	-0.13
	(0.07)	(0.06)	(0.09)	(0.05)	(0.06)	(0.07)	(0.14)
Catholic (=1)	0.06	0.01	0.03	0.02	0.10*	0.03	0.02
	(0.05)	(0.04)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)
Orthodox (=1)	0.02	0.04	-0.06	-0.03	0.08	0.03	0.04
	(0.07)	(0.06)	(0.06)	(0.05)	(0.07)	(0.09)	(0.08)
Muslim (=1)	0.16**	0.10	0.06	0.14**	0.25***	-0.04	0.30**
	(0.06)	(0.08)	(0.07)	(0.06)	(0.07)	(0.08)	(0.11)
Other Religion (=1)	0.02	-0.09	-0.04	-0.07	0.05	0.17**	-0.14
	(0.16)	(0.15)	(0.11)	(0.24)	(0.08)	(0.07)	(0.10)
Religion Importance	0.01	0.01	-0.03*	0.00	0.02**	0.01	0.06***
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Observations	15974.00	15239.00	15375.00	15328.00	15333.00	13521.00	16343.00
R-Squared	0.15	0.13	0.07	0.08	0.25	0.15	0.16

Note: All dependent variables are standardized. Standard errors clustered at the country level in parenthesis. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Source: LiTS.

Table B7: Dominance Masculinity Dimensions – Economics

	Working		Would Work More		Masculine Sector		Competitiveness	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Masculinity - Importance of Winning								
CMNI Winning	-0.012**	-0.009*	0.023***	0.022***	0.017**	0.013*	0.044***	0.049***
	(0.005)	(0.006)	(0.005)	(0.005)	(0.007)	(0.007)	(0.016)	(0.016)
TGRI Score	0.000	0.008	-0.002	-0.006	0.040***	0.024***	-0.048***	-0.030*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.015)	(0.015)
Mean of outcome	0.58	0.58	0.17	0.17	0.43	0.43	0.02	0.02
R-squared	0.13	0.15	0.11	0.11	0.07	0.10	0.11	0.13
Observations	15,176	15,176	8,806	8,806	8,806	8,806	15,176	15,176
Panel B: Masculinity - Violence								
CMNI Violence	-0.003	-0.002	0.010*	0.009*	-0.003	-0.006	-0.011	-0.008
	(0.006)	(0.006)	(0.005)	(0.005)	(0.007)	(0.007)	(0.014)	(0.014)
TGRI Score	-0.002	0.006	0.002	-0.002	0.043***	0.028***	-0.039**	-0.020
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.014)	(0.014)
Mean of outcome	0.58	0.58	0.17	0.17	0.43	0.43	0.01	0.01
R-squared	0.13	0.15	0.10	0.11	0.07	0.10	0.11	0.13
Observations	15,314	15,314	8,874	8,874	8,874	8,874	15,314	15,314
Panel C: Masculinity - Help Avoidance								
CMNI Help Avoidance	0.005	0.005	0.008*	0.008	0.011*	0.012**	0.010	0.009
	(0.004)	(0.004)	(0.005)	(0.005)	(0.006)	(0.005)	(0.016)	(0.015)
TGRI Score	-0.002	0.006	0.003	-0.001	0.040***	0.024***	-0.042***	-0.023
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.015)	(0.015)
Mean of outcome	0.58	0.58	0.17	0.17	0.43	0.43	0.01	0.01
R-squared	0.14	0.15	0.11	0.11	0.07	0.10	0.11	0.13
Observations	15,267	15,267	8,849	8,849	8,849	8,849	15,267	15,267
Panel D: Masculinity - Control Over Women								
CMNI Control Over Women	0.002	0.004	0.020***	0.019***	0.013*	0.010	0.037**	0.041***
	(0.008)	(0.007)	(0.006)	(0.007)	(0.007)	(0.008)	(0.015)	(0.015)
TGRI Score	-0.003	0.005	0.000	-0.003	0.039***	0.024***	-0.048***	-0.030**
	(0.006)	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)	(0.015)	(0.015)
Mean of outcome	0.58	0.58	0.17	0.17	0.43	0.43	0.01	0.01
R-squared	0.14	0.15	0.11	0.11	0.07	0.10	0.11	0.13
Observations	15,267	15,267	8,807	8,807	8,807	8,807	15,267	15,267
Panel E: Masculinity - Disdain for Homosexuals								
CMNI Against Homosexuals	0.002	0.001	0.000	0.001	0.000	0.003	0.010	0.009
	(0.007)	(0.006)	(0.006)	(0.006)	(0.009)	(0.009)	(0.018)	(0.017)
TGRI Score	-0.006	0.003	0.003	-0.001	0.047***	0.031***	-0.049***	-0.028*
	(0.005)	(0.005)	(0.006)	(0.007)	(0.007)	(0.007)	(0.015)	(0.015)
Mean of outcome	0.60	0.60	0.16	0.16	0.44	0.44	0.03	0.03
R-squared	0.13	0.15	0.11	0.12	0.07	0.10	0.11	0.13
Observations	13,475	13,475	8,020	8,020	8,020	8,020	13,475	13,475
Country FEs	×	×	×	×	×	×	×	×
Age, Urban	×	×	×	×	×	×	×	×
Education, Religion, Religiosity		×		×		×		×

Note: OLS regressions. An observation is an individual respondent in LiTS. The dependent variables *Working* (columns 1-2), *Would Work More* (columns 3-4), and *Masculine Sector* (columns 5-6) are defined as dummies equal 1 if the individual was working, would like to work more hours, and was employed in a masculine sector, respectively. *Competitiveness* (columns 7-8) was measured on a scale from 0 – "not competitive at all" to 10 – "very competitive", and is standardized. For more details on the definitions of the dependent variables, please refer to Table B5. The CMNI subitens and TGRI score are standardized. Standard errors are clustered at the country level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: LiTS.

Table B8: Dominance Masculinity Dimensions – Risk and Health

	Risk Taking		Uses Seatbelt		Skip Visit to Doctor		Depression Score	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Masculinity - Importance of Winning								
CMNI Winning	0.051***	0.054***	-0.018	-0.016	0.002	0.001	0.057***	0.055***
	(0.015)	(0.014)	(0.013)	(0.013)	(0.005)	(0.005)	(0.014)	(0.013)
TGRI Score	-0.018	-0.007	-0.069***	-0.063***	0.002	-0.001	0.051***	0.043***
	(0.012)	(0.012)	(0.014)	(0.015)	(0.003)	(0.004)	(0.014)	(0.014)
Mean of outcome	0.01	0.01	-0.01	-0.01	0.12	0.12	-0.00	-0.00
R-squared	0.10	0.11	0.21	0.21	0.08	0.09	0.26	0.27
Observations	15,104	15,104	14,678	14,678	15,176	15,176	14,990	14,990
Panel B: Masculinity - Violence								
CMNI Violence	0.021	0.022*	-0.054***	-0.053***	0.004	0.004	0.094***	0.094***
	(0.012)	(0.013)	(0.010)	(0.010)	(0.004)	(0.004)	(0.019)	(0.018)
TGRI Score	-0.014	-0.004	-0.060***	-0.054***	0.001	-0.002	0.041***	0.031**
	(0.012)	(0.011)	(0.014)	(0.015)	(0.003)	(0.004)	(0.013)	(0.013)
Mean of outcome	0.01	0.01	-0.00	-0.00	0.12	0.12	-0.00	-0.00
R-squared	0.10	0.11	0.21	0.22	0.09	0.09	0.26	0.27
Observations	15,244	15,244	14,817	14,817	15,314	15,314	15,131	15,131
Panel C: Masculinity - Help Avoidance								
CMNI Help Avoidance	0.027**	0.026**	-0.047***	-0.047***	0.007	0.007	0.063***	0.063***
	(0.012)	(0.011)	(0.014)	(0.014)	(0.004)	(0.004)	(0.012)	(0.012)
TGRI Score	-0.012	-0.001	-0.065***	-0.059***	0.001	-0.002	0.052***	0.043***
	(0.013)	(0.012)	(0.014)	(0.015)	(0.003)	(0.004)	(0.015)	(0.015)
Mean of outcome	0.01	0.01	-0.01	-0.01	0.12	0.12	-0.00	-0.00
R-squared	0.10	0.11	0.21	0.22	0.09	0.09	0.26	0.27
Observations	15,194	15,194	14,766	14,766	15,267	15,267	15,086	15,086
Panel D: Masculinity - Control Over Women								
CMNI Control Over Women	0.048***	0.050***	-0.019	-0.017	0.013***	0.012**	0.066***	0.063***
	(0.016)	(0.015)	(0.015)	(0.015)	(0.005)	(0.005)	(0.020)	(0.019)
TGRI Score	-0.021	-0.010	-0.066***	-0.061***	-0.002	-0.005	0.046***	0.037**
	(0.013)	(0.012)	(0.014)	(0.015)	(0.004)	(0.004)	(0.015)	(0.015)
Mean of outcome	0.01	0.01	-0.01	-0.01	0.12	0.12	0.00	0.00
R-squared	0.10	0.11	0.21	0.21	0.09	0.09	0.26	0.27
Observations	15,193	15,193	14,763	14,763	15,267	15,267	15,078	15,078
Panel E: Masculinity - Disdain for Homosexuals								
CMNI Against Homosexuals	-0.008	-0.009	-0.024*	-0.026*	-0.003	-0.002	0.001	0.000
	(0.015)	(0.014)	(0.014)	(0.014)	(0.006)	(0.006)	(0.017)	(0.016)
TGRI Score	-0.014	-0.002	-0.086***	-0.080***	0.004	0.001	0.068***	0.060***
	(0.014)	(0.014)	(0.014)	(0.015)	(0.004)	(0.004)	(0.015)	(0.015)
Mean of outcome	0.02	0.02	0.01	0.01	0.11	0.11	-0.05	-0.05
R-squared	0.10	0.11	0.23	0.23	0.09	0.10	0.24	0.24
Observations	13,422	13,422	13,087	13,087	13,475	13,475	13,335	13,335
Country FEs	×	×	×	×	×	×	×	×
Age, Urban	×	×	×	×	×	×	×	×
Education, Religion, Religiosity		×		×		×		×

Notes: OLS regressions. An observation is an individual respondent in LiTS. The dependent variable *Skip Visit to Doctor* (columns 5-6) is defined as a dummy equals 1 if the respondent answered they skipped a doctor's visit in case of a negative shock. The other outcome variables are standardized: *Risk Taking* (columns 1-2) was measured on a scale from 1 – "Not willing to take risk at all" to 10 – "Very much willing to take risk", *Uses Seatbelt* (columns 3-4) encompass the mean across three questions on whether the respondent uses seatbelt, and *Depression Score* (columns 7-8) encompass four questions that measure depression. For more details on the definitions of the dependent variables, please refer to Table B5. The CMNI subitens and TGRI score are standardized. Standard errors are clustered at the country level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: LiTS.

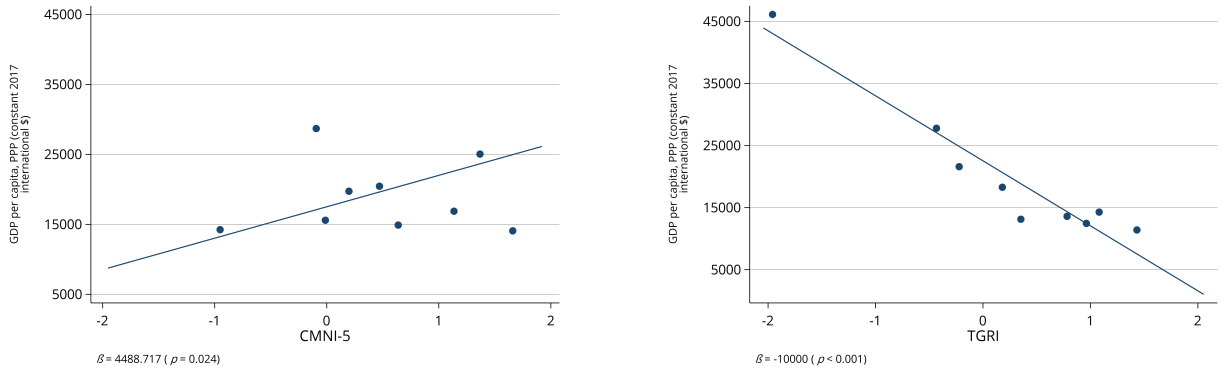
Table B9: Dominance Masculinity Dimensions – Politics

	Pro Democracy		Pro Market		Support for Strong Leader		Support for Army	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Masculinity - Importance of Winning								
CMNI Winning	-0.018***	-0.017**	-0.012	-0.010	0.033***	0.032***	0.034***	0.033***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
TGRI Score	-0.057***	-0.051***	-0.026**	-0.020*	0.029***	0.025***	0.034***	0.025***
	(0.007)	(0.007)	(0.012)	(0.012)	(0.008)	(0.007)	(0.008)	(0.008)
Mean of outcome	0.59	0.59	0.44	0.44	0.46	0.46	0.33	0.33
R-squared	0.08	0.09	0.05	0.06	0.16	0.16	0.21	0.22
Observations	14,156	14,156	12,283	12,283	13,012	13,012	13,028	13,028
Panel B: Masculinity - Violence								
CMNI Violence	-0.044***	-0.044***	-0.038***	-0.038***	0.006	0.007	0.027***	0.030***
	(0.008)	(0.008)	(0.009)	(0.009)	(0.008)	(0.008)	(0.010)	(0.010)
TGRI Score	-0.051***	-0.044***	-0.019	-0.012	0.034***	0.030***	0.032***	0.023***
	(0.007)	(0.007)	(0.012)	(0.012)	(0.007)	(0.007)	(0.007)	(0.008)
Mean of outcome	0.60	0.60	0.44	0.44	0.46	0.46	0.33	0.33
R-squared	0.09	0.10	0.05	0.06	0.16	0.16	0.21	0.22
Observations	14,278	14,278	12,409	12,409	13,103	13,103	13,130	13,130
Panel C: Masculinity - Help Avoidance								
CMNI Help Avoidance	-0.010	-0.010*	-0.013**	-0.014**	0.007	0.007	0.005	0.005
	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
TGRI Score	-0.059***	-0.052***	-0.028**	-0.022*	0.034***	0.030***	0.039***	0.030***
	(0.008)	(0.008)	(0.012)	(0.012)	(0.007)	(0.007)	(0.008)	(0.008)
Mean of outcome	0.59	0.59	0.44	0.44	0.46	0.46	0.33	0.33
R-squared	0.08	0.09	0.05	0.06	0.16	0.16	0.21	0.22
Observations	14,231	14,231	12,362	12,362	13,049	13,049	13,080	13,080
Panel D: Masculinity - Control Over Women								
CMNI Control Over Women	-0.030***	-0.028***	-0.024***	-0.022***	0.023**	0.022**	0.025**	0.023**
	(0.009)	(0.008)	(0.008)	(0.008)	(0.009)	(0.008)	(0.010)	(0.010)
TGRI Score	-0.052***	-0.046***	-0.021	-0.015	0.028***	0.025***	0.034***	0.025***
	(0.008)	(0.008)	(0.013)	(0.013)	(0.007)	(0.007)	(0.008)	(0.008)
Mean of outcome	0.59	0.59	0.44	0.44	0.46	0.46	0.33	0.33
R-squared	0.08	0.09	0.05	0.06	0.16	0.16	0.21	0.23
Observations	14,241	14,241	12,348	12,348	13,074	13,074	13,102	13,102
Panel E: Masculinity - Disdain for Homosexuals								
CMNI Against Homosexuals	-0.015	-0.015	-0.012	-0.013	0.001	0.001	-0.010	-0.009
	(0.009)	(0.009)	(0.011)	(0.011)	(0.009)	(0.009)	(0.008)	(0.007)
TGRI Score	-0.059***	-0.053***	-0.028**	-0.022*	0.034***	0.030***	0.043***	0.035***
	(0.009)	(0.009)	(0.013)	(0.012)	(0.009)	(0.008)	(0.008)	(0.009)
Mean of outcome	0.60	0.60	0.45	0.45	0.46	0.46	0.32	0.32
R-squared	0.09	0.10	0.05	0.06	0.15	0.16	0.21	0.22
Observations	12,641	12,641	11,492	11,492	11,642	11,642	11,645	11,645
Country FEs	×	×	×	×	×	×	×	×
Age, Urban	×	×	×	×	×	×	×	×
Education, Religion, Religiosity		×		×		×		×

Notes: OLS regressions. An observation is an individual respondent in LiTS. All dependent variables are defined as dummies equal to 1 if the respondent agrees that democracy is preferable to other political system (columns 1-2), if agrees that a market economy is preferable to any other economic system (column 3-4), if thinks that having a strong leader in power is fairly or very good (column 5-6), or if thinks that having the army rule is fairly or very good (columns 7-8). For more details on the definitions of the dependent variables, please refer to Table B5. The CMNI subitens and TGRI score are standardized. Standard errors are clustered at the country level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: LiTS.

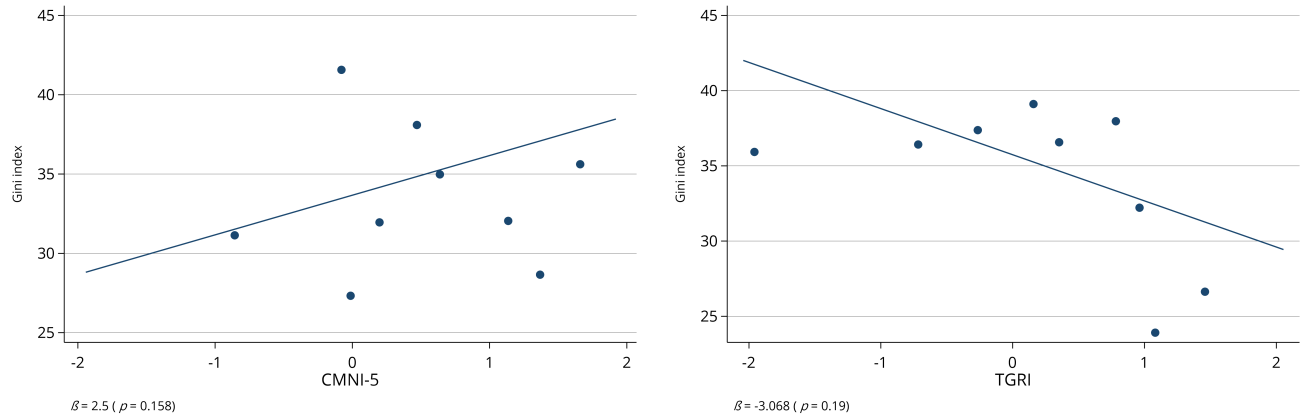
Online Appendix C: Robustness to Using `binsreg`

Figure C1: Dominance Masculinity Norms, Gender Roles Norms, and GDP Per Capita: `binsreg`



Notes: The left panel shows a binscatter plot of the country-level relationship between the latest available PPP adjusted GDP per capita and the standardized Conformity to Masculinity Norms Index (CMNI-5) once the influence of the Traditional Gender Roles Index (TGRI) is accounted for. The right panel shows the same for the TGRI after partialling out the CMNI-5. Both binscatters account for the influence of continent fixed effects (Europe, Asia and Africa). Source: World Bank and LiTS.

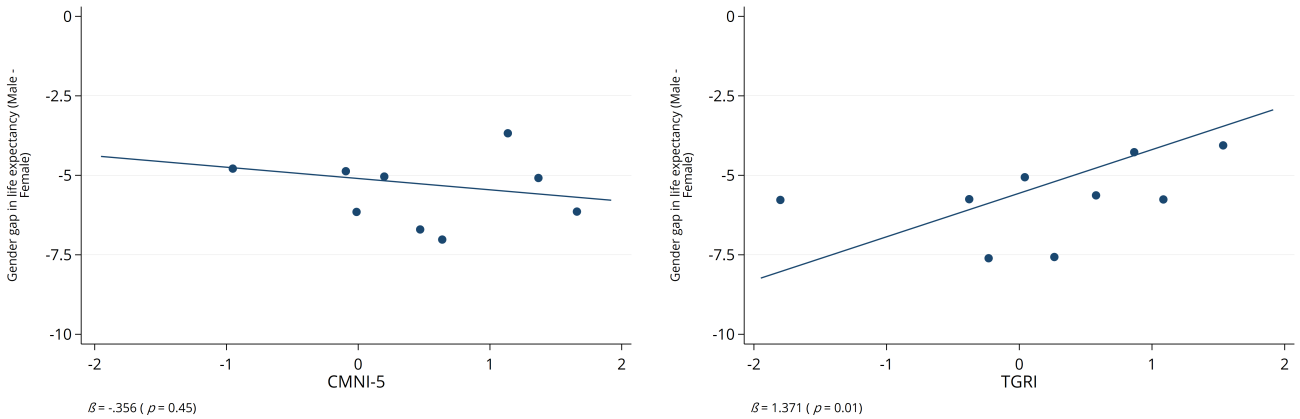
Figure C2: Dominance Masculinity Norms, Gender Roles Norms, and Economic Inequality: `binsreg`



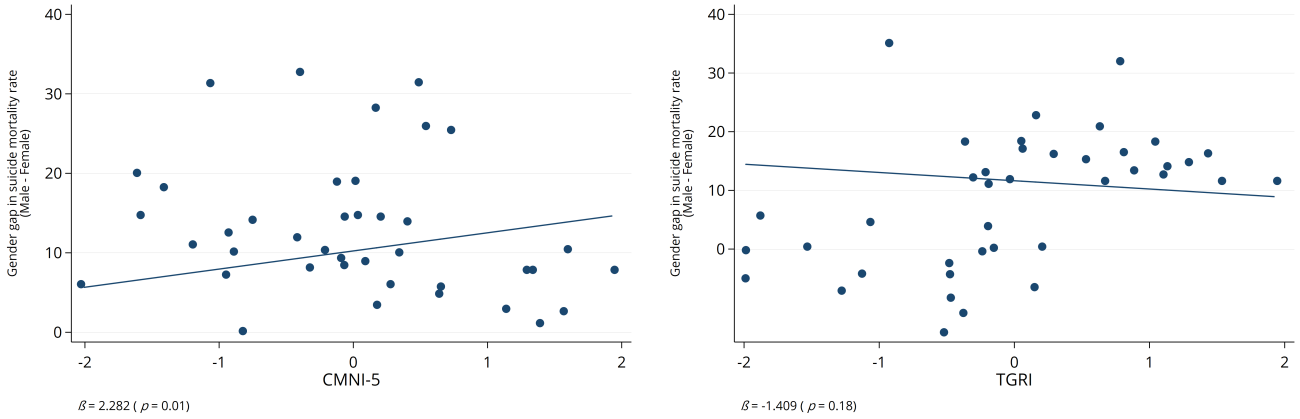
Notes: The left panel shows a binscatter plot of the country-level relationship between the latest available Gini index and the standardized Conformity to Masculinity Norms Index (CMNI-5) once the influence of the Traditional Gender Roles Index (TGRI) and PPP adjusted GDP per capita is accounted for. The right panel shows the same for the TGRI after partialling out the CMNI-5 and GDP per capita. Both binscatters account for the influence of continent fixed effects (Europe, Asia and Africa). The Gini index is a proxy for country-level income inequality. It ranges between 0 and 100, where higher values indicate higher inequality. Source: World Bank and LiTS.

Figure C3: Dominance Masculinity Norms, Gender Roles Norms, and Male Life Expectancy: `binsreg`

Panel A: Gender gap in life expectancy

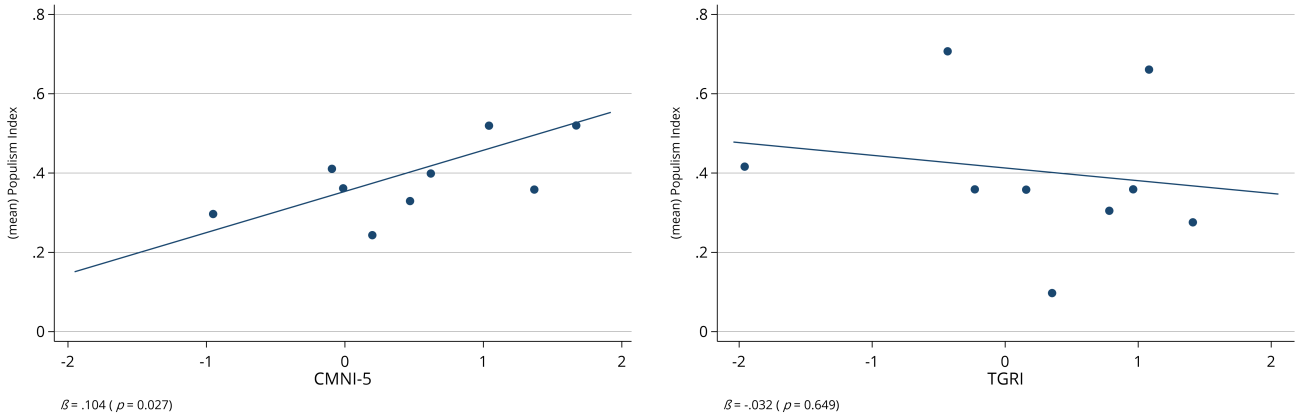


Panel B: Gender gap in suicide mortality rates



Notes: The left panel shows a binscatter plot of the country-level relationship between the latest available country-level male life expectancy and the standardized Conformity to Masculinity Norms Index (CMNI-5) once the influence of the Traditional Gender Roles Index (TGRI), PPP-adjusted GDP per capita, and population age structure is accounted for. The right panel shows the same for the TGRI after accounting for the CMNI-5, PPP-adjusted GDP per capita, and population age structure. Both binscatters account for the influence of continent fixed effects (Europe, Asia and Africa). Source: World Bank and LiTS.

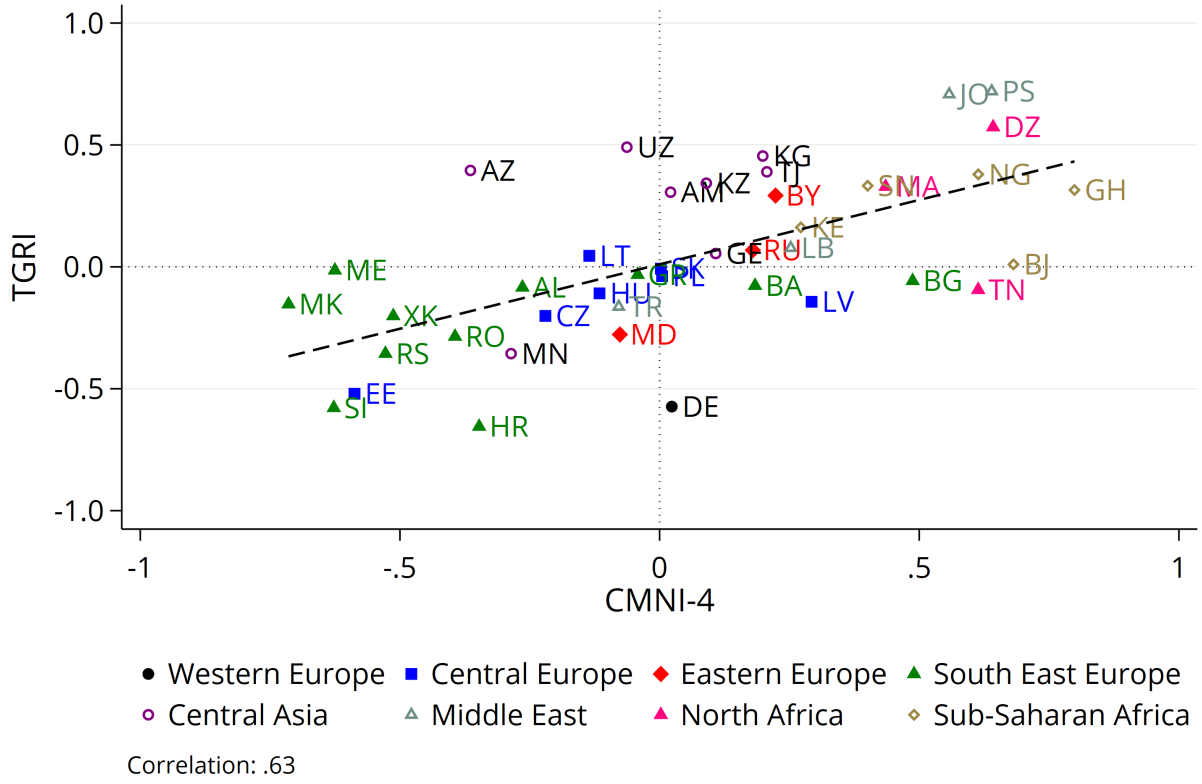
Figure C4: Dominance Masculinity Norms, Gender Roles Norms, and Populism `binsreg`



Notes: The left panel shows a binscatter plot of the country-level relationship between the Populism Index from the V-Dem Institute and the standardized Conformity to Masculinity Norms Index (CMNI-5) once the influence of the Traditional Gender Roles Index (TGRI) and PPP adjusted GDP per capita is accounted for. The right panel shows the same for the TGRI after partialling out the CMNI-5 and GDP per capita. Both binscatters account for the influence of continent fixed effects (Europe, Asia and Africa).

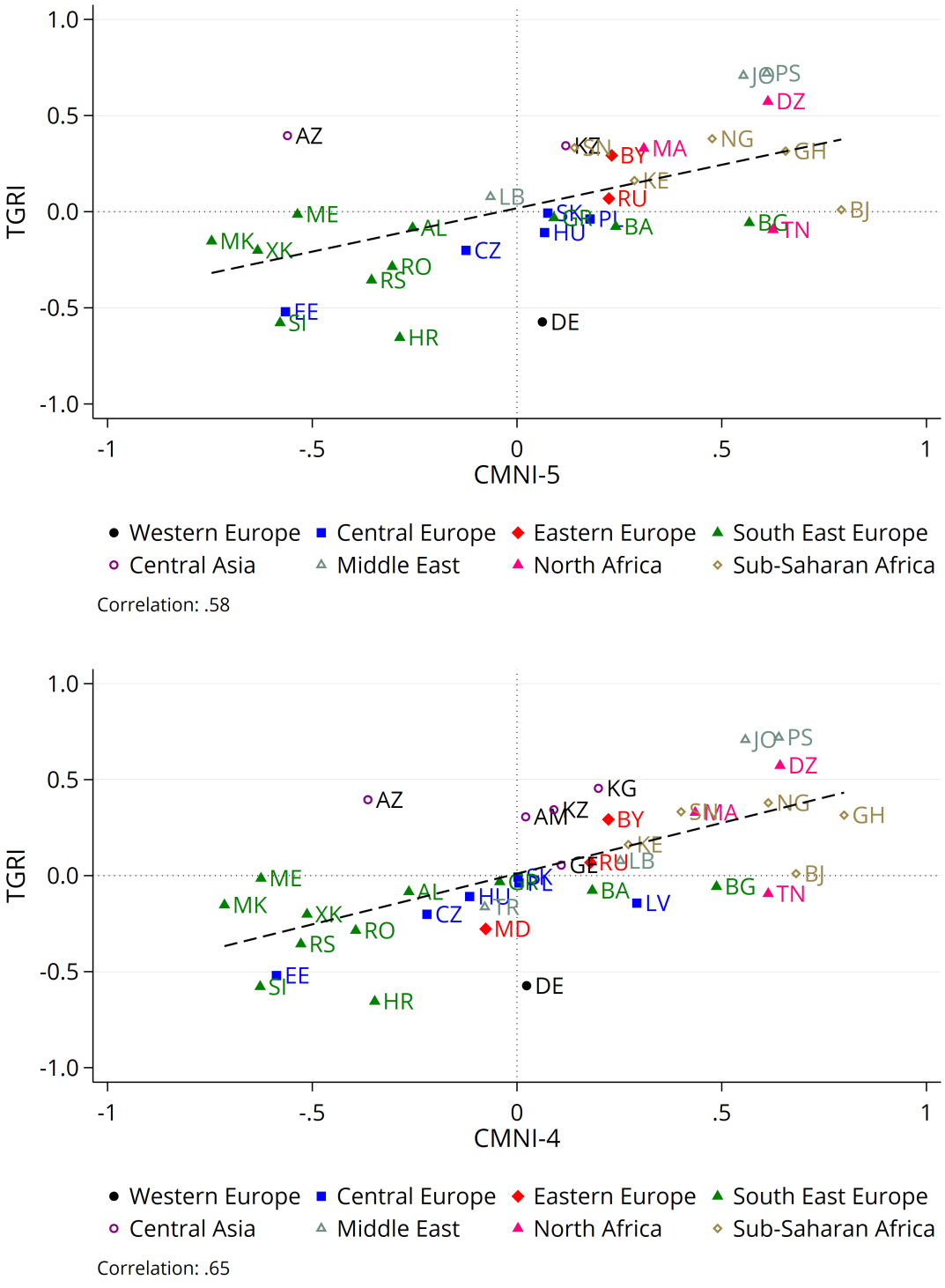
Online Appendix D: Robustness Using CMNI-4

Figure D1: Cross-country Correlation Between Dominance Masculinity (CMNI-4) and Gender Roles Norms



Notes: This figure displays a scatter plot and fitted linear regression of the four-item Conformity to Masculinity index (CMNI-4) and the Traditional Gender Roles Index (TGRI) across countries. Source: LiTS.

Figure D2: Correlations Between Dominance Masculinity (CMNI-5 and CMNI-4) and Gender Roles Norms, Across Countries – Excluding Non-responses



Notes: This figure displays a scatter plot and fitted linear regressions of the 5-item Conformity to Masculinity index (CMNI-5) (top panel), as well as the 4-item Conformity to Masculinity index (CMNI-4) on the Traditional Gender Roles Index (TGRI) across countries. We keep countries with average response rates to all 4 or 5 items above 20%. Source: LITS.

Table D1: Dominance Masculinity (CMNI-4) and Gender Roles Norms - Economics

	Working		Would Work More		Masculine Sector		Competitiveness	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Masculinity Norms								
CMNI-4 Score	-0.003	0.001	0.023***	0.022***	0.025***	0.018***	0.019	0.028*
	(0.007)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)	(0.016)	(0.016)
Mean of outcome	0.58	0.58	0.17	0.17	0.43	0.43	0.01	0.01
R-squared	0.14	0.15	0.11	0.11	0.06	0.10	0.11	0.14
Observations	15,965	15,965	9,227	9,227	9,227	9,227	15,965	15,965
Panel B: Gender Roles Norms								
TGRI Score	-0.003	0.005	0.004	0.000	0.043***	0.028***	-0.041***	-0.022
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.015)	(0.015)
Mean of outcome	0.58	0.58	0.17	0.17	0.43	0.43	0.00	0.00
R-squared	0.13	0.15	0.11	0.12	0.06	0.10	0.11	0.14
Observations	16,343	16,343	9,428	9,428	9,428	9,428	16,343	16,343
Panel C: Masculinity and Gender Roles Norms								
CMNI-4 Score	-0.002	0.000	0.023***	0.022***	0.015**	0.011*	0.031*	0.035**
	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.016)	(0.015)
TGRI Score	-0.002	0.006	-0.002	-0.005	0.039***	0.023***	-0.048***	-0.030**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.015)	(0.014)
Mean of outcome	0.58	0.58	0.17	0.17	0.43	0.43	0.01	0.01
R-squared	0.14	0.16	0.11	0.12	0.07	0.10	0.11	0.14
Observations	15,887	15,887	9,192	9,192	9,192	9,192	15,887	15,887
Country FEs	×	×	×	×	×	×	×	×
Age, Urban	×	×	×	×	×	×	×	×
Education, Religion, Religiosity		×		×		×		×

Notes: The dependent variables *Working* (columns 1-2), *Would Work More* (columns 3-4), and *Masculine Sector* (columns 5-6) are defined as dummies, whereas *Competitiveness* (columns 7-8) is standardized. Standard errors are clustered at the country level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Source: LiTS.

Table D2: Dominance Masculinity (CMNI-4) and Gender Roles Norms - Risk and Health

	Risk Taking		Uses Seatbelt		Skip Visit to Doctor		Depression Score	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Masculinity Norms								
CMNI-4 Score	0.053***	0.058***	-0.072***	-0.068***	0.010*	0.008	0.122***	0.117***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.005)	(0.005)	(0.020)	(0.019)
Mean of outcome	0.01	0.01	-0.00	-0.00	0.12	0.12	-0.00	-0.00
R-squared	0.10	0.11	0.21	0.21	0.08	0.09	0.26	0.27
Observations	15,880	15,880	15,444	15,444	15,965	15,965	15,729	15,729
Panel B: Gender Roles Norms								
TGRI Score	-0.011	0.001	-0.070***	-0.064***	0.001	-0.002	0.059***	0.049***
	(0.013)	(0.012)	(0.014)	(0.015)	(0.003)	(0.003)	(0.014)	(0.014)
Mean of outcome	0.00	0.00	-0.00	-0.00	0.12	0.12	-0.00	-0.00
R-squared	0.10	0.11	0.20	0.21	0.08	0.09	0.25	0.26
Observations	16,253	16,253	15,806	15,806	16,343	16,343	16,074	16,074
Panel C: Masculinity and Gender Roles Norms								
CMNI-4 Score	0.060***	0.062***	-0.058***	-0.056***	0.010*	0.009*	0.113***	0.111***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.005)	(0.005)	(0.019)	(0.019)
TGRI Score	-0.026**	-0.015	-0.056***	-0.051***	-0.001	-0.004	0.029**	0.020
	(0.012)	(0.011)	(0.014)	(0.015)	(0.004)	(0.004)	(0.014)	(0.014)
Mean of outcome	0.01	0.01	-0.00	-0.00	0.12	0.12	-0.00	-0.00
R-squared	0.10	0.11	0.21	0.21	0.09	0.09	0.27	0.27
Observations	15,806	15,806	15,370	15,370	15,887	15,887	15,668	15,668
Country FEs	×	×	×	×	×	×	×	×
Age, Urban	×	×	×	×	×	×	×	×
Education, Religion, Religiosity		×		×		×		×

Notes: The dependent variable *Skip Visit to Doctor* (columns 5-6) is defined as a dummy, whereas *Risk Taking* (columns 1-2), *Uses Seatbelt* (columns 3-4) and *Depression Score* (columns 7-8) are standardized. Standard errors are clustered at the country level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table D3: Dominance Masculinity (CMNI-4) and Gender Roles Norms - Politics

	Pro Democracy		Pro Market		Support for Strong Leader		Support for Army	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Masculinity Norms								
CMNI-4 Score	-0.053***	-0.050***	-0.037***	-0.034***	0.036***	0.034***	0.044***	0.041***
	(0.008)	(0.008)	(0.009)	(0.009)	(0.006)	(0.006)	(0.010)	(0.010)
Mean of outcome	0.59	0.59	0.44	0.44	0.47	0.47	0.33	0.33
R-squared	0.08	0.09	0.05	0.06	0.16	0.16	0.21	0.23
Observations	14,820	14,820	12,929	12,929	13,580	13,580	13,629	13,629
Panel B: Gender Roles Norms								
TGRI Score	-0.060***	-0.054***	-0.028**	-0.021*	0.036***	0.032***	0.039***	0.030***
	(0.008)	(0.008)	(0.012)	(0.012)	(0.007)	(0.007)	(0.008)	(0.008)
Mean of outcome	0.59	0.59	0.44	0.44	0.47	0.47	0.33	0.33
R-squared	0.08	0.09	0.05	0.06	0.17	0.17	0.22	0.23
Observations	15,134	15,134	13,234	13,234	13,856	13,856	13,908	13,908
Panel C: Masculinity and Gender Roles Norms								
CMNI-4 Score	-0.040***	-0.039***	-0.032***	-0.030***	0.028***	0.028***	0.035***	0.035***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.010)	(0.009)
TGRI Score	-0.049***	-0.043***	-0.019	-0.013	0.028***	0.024***	0.029***	0.020**
	(0.007)	(0.008)	(0.012)	(0.012)	(0.007)	(0.007)	(0.007)	(0.008)
Mean of outcome	0.59	0.59	0.44	0.44	0.47	0.47	0.33	0.33
R-squared	0.09	0.10	0.05	0.06	0.16	0.16	0.22	0.23
Observations	14,760	14,760	12,876	12,876	13,534	13,534	13,582	13,582
Country FEs	×	×	×	×	×	×	×	×
Age, Urban	×	×	×	×	×	×	×	×
Education, Religion, Religiosity		×		×		×		×

Notes: All dependent variables are defined as dummies. Standard errors are clustered at the country level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Online Appendix E: Masculinity Norms and Outcomes: Some Causal Evidence

The main analyses in the paper provide cross-country and within-country evidence showing how men's adherence to dominance masculinity norms correlates strongly and consistently with aggregate and individual economic, health, and political outcomes. We now leverage a historical experiment to provide some exploratory evidence on the causal link between dominance masculinity norms and socioeconomic outcomes.

Baranov et al. (2023) argue that spatial variation in historically male-biased sex ratios, induced by British convict transportation between 1787 and 1868, durably shaped masculinity norms across Australia. In the convict era, the argument goes, areas that had more male-biased sex ratios experienced more male-male competition for scarce females. The authors hypothesize that this competition crystallised into dominance masculinity norms, which have persisted to the present day despite sex ratios having equalized since the turn of the 20th century. In support of this argument, the authors show that historically male-biased (convict) sex ratios are positively associated with various proximate outcomes related to dominance masculinity norms, such as voluntary enlistment in WWI, present-day violent behavior and crime, male suicide, bullying of boys in school, COVID-19 vaccine hesitancy among men, voting against same-sex marriage in a national referendum, and stereotypically male occupational choice.

Identification stems from the quasi-random nature of assigning convicts to locations throughout Australia, conditional on the local natural environment and labor needs (Grosjean and Khattar, 2019; Baranov et al., 2023). However, even if local convict sex ratios were entirely random, they may affect present-day outcomes through channels other than male-male competition and subsequent masculinity norms. Indeed, Grosjean and Khattar (2019) show that male-biased sex ratios also improved women's bargaining positions and influenced norms pertaining to women's work and homemaking roles. Nevertheless, the male-female bargaining channel is unlikely to explain the impacts on present-day male behavior, particularly for outcomes

unrelated to the labor market, such as violence, bullying, mental and physical health-care avoidance, and suicide. These behaviors are all detrimental to women's wellbeing, too, and should therefore, if anything, be attenuated by favorable bargaining positions for women.[35]

In this section, we build on Baranov et al. (2023) by providing further evidence that historically male-biased sex ratios are associated with greater individual adherence to dominance masculinity norms, as measured by the CMNI-5. We also demonstrate that these sex ratios predict labor supply, mental health, and help avoidance outcomes in a manner consistent with the evidence from the Life in Transition Survey (LiTS) discussed previously. To do so, we rely on the Australian *Ten to Men*, a nationally representative survey that provides information on hours worked, willingness to work more, whether the respondent has experienced depression, and whether they display healthcare avoidance.[36] The survey also administered the CMNI.[37]

To mirror the LiTS results, we first show associations between the CMNI-5 and our outcomes of interest. Table E1 (even columns) shows that the CMNI-5 strongly predicts men's willingness to work more (but not labor supply at the extensive margin), depression (as measured by the PHQ-9), and healthcare avoidance (as measured by whether the respondent endorses the statement "I only go to the doctor when pushed to do so"). Moreover, the magnitudes of the associations are generally similar to those found in the LiTS. For example, a one standard deviation increase in the CMNI-5 is associated with a 0.02 percentage point increase in the willingness to work more (also 0.02 in LiTS) and a 0.13 standard deviation increase in the depression score (0.10 in LiTS).

Next, we evaluate the impact of male-biased historical (convict) sex ratios on the CMNI-5 (column 1) as well as economic and health outcomes for men (columns 3-5-7-9). We estimate the following Equation:

[35] For a more detailed discussion of identification, balance and placebo tests, see Baranov et al. (2023).

[36] We focus on outcomes that were not already reported in Baranov et al. (2023).

[37] The *Ten to Men* survey also includes questions on sexual preferences. Since we expect the dominance masculinity norms discussed in this paper to primarily apply to heterosexual males, we restrict the analysis to self-declared heterosexual males, although our results are unchanged when we consider the full sample.

$$y_{ics} = \alpha + \beta ConvictSexRatio_{cs} + X_{cs}^{H\prime}\Pi + X_{ics}^{C\prime}\Theta + \delta_s + \varepsilon_{ics} \quad (2)$$

Where y_{ics} are present-day outcomes for a man i in historical county c in state s. $ConvictSexRatio_{cs}$ is the historical ratio of male to female convicts in county c in state s (the historical sex ratio), standardized so as to interpret the coefficient β as the impact of a one standard deviation increase in this sex ratio. δ_s is a vector of state dummies. Standard errors are clustered at the historical county level. The main limitation of this analysis is the smaller sample size due to the limited overlap between the historical data and primary sampling units included in the *Ten to Men* survey. This is because, in order to address questions related to regional disparities in male health, the survey oversampled rural areas that were not yet settled at the time of convict transportation. As a result, there are only 11 historical clusters covered in the *Ten to Men* survey. We therefore report p-values using the Wild cluster bootstrap procedure at the bottom of Table E1 (Cameron et al., 2008).

X_{cs}^{H} is a vector of time-invariant historical characteristics that may correlate with the convict sex ratio and might still influence present-day outcomes. We include the historical characteristics as in Grosjean and Khattar (2019) and Baranov et al. (2023), which capture total historical population and initial economic specialization.[38] Lastly, X_{ics} is a vector of individual-level covariates that may correlate with masculinity norms and the outcomes of interest, including age, language spoken at home as a proxy for cultural origins, and Aboriginal or Torres Straight Islander status. We also control for a five-level measure of remoteness and population size for i's area of residence.[39]

The results showing the impact of male-biased sex ratios on adherence to dominance masculinity norms and economic and health outcomes are presented in the odd columns of Table E1 (Panel B). The convict sex ratio strongly predicts stricter individual adherence to dominance

[38]Historic controls are: the historical county population, convict population, as well as the proportion of residents working historically in agriculture, domestic service, manufacturing and mining, and government services and learned professions.

[39]This measure is taken from the Modified Monash Model, the Australian geographical classification system to categorize metropolitan, regional, rural, and remote areas

masculinity norms as measured by CMNI-5 (column 1). A one standard deviation increase in convict ratio increases the CMNI-5 score by 0.046 standard deviations (p-value=0.066). At the same time, we also find a clear impact of male-biased sex ratios on male employment outcomes. A one standard deviation higher historical sex ratio increases the likelihood of wanting to work more by 0.037 percentage points (there is no impact on labor supply at the extensive margin). Lastly, we find that skewed historical sex ratios also had persistent health impacts in the form of higher rates of depression and a lower likelihood of attending doctor visits, all else equal. Overall, despite the limitations due to the small sample size, these results indicate how historical conditions shaped dominance masculinity norms and related health and economic outcomes of men. They did so in line with the associations between CMNI-5 and outcomes documented in both the LiTS and *Ten to Men* surveys.

Table E1: Historical Convict Sex Ratios in Australia and their Present-day Impacts on Dominance Masculinity Norms as well as Economic and Health Outcomes

	CMNI-5	Working		Would Work More		Depression Score		Doctor's Visit Pushed	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		OLS	Red. form	OLS	Red. form	OLS	Red. form	OLS	Red. form
CMNI-5		-0.003		0.018***		0.130***		0.055***	
		(0.002)		(0.004)		(0.010)		(0.005)	
Convict Sex Ratio	0.046***		-0.001		0.037**		0.158***		0.032***
	(0.004)		(0.008)		(0.014)		(0.023)		(0.006)
Mean of outcome	0.02	0.97	0.97	0.15	0.17	-0.01	0.04	0.35	0.36
R-squared	0.02	0.00	0.01	0.06	0.06	0.04	0.02	0.03	0.01
Observations	3,191	7,989	2,332	8,484	2,480	9,829	3,191	9,634	2,907
Wild p	0.066		0.922		0.116		0.024		0.286

Notes: OLS regressions. An observation is an individual respondent in *Ten to Men*. Standard errors are clustered at the historical county level and shown in parentheses. Wild cluster bootstrap p-values, adjusting for the small number of clusters (11) are reported at the bottom of the table. *** p<0.01, ** p<0.05, * p<0.1. Source: *Ten to Men*, Grosjean and Khattar (2019); Baranov et al. (2023).