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The Robots are Coming for Our Jobs: Technological Anxiety, Economic Insecurity, and Political Preferences in Latin America

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The robots are coming for our jobs: Technological anxiety, economic insecurity, and political preferences in Latin America *

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Technological anxiety might affect political attitudes because of increased economic insecurity or because of cultural/status concerns. In this paper we examine the prevalence of technological anxiety in Latin America, as well as its relationship with economic insecurity and political outcomes. The study addresses a gap in our understanding of the impact of technological anxiety on democratic attitudes and political outcomes, particularly in middle and low income countries. The analysis is based on data from the 2020 Latinobarometro survey, which covers 18 Latin American countries with more than 20,000 respondents. The results disentangle the relation between individual (egocentric) and collective (sociotropic) evaluations of technological anxiety and several political outcomes. We find that while individual level technological anxiety is associated with left leaning positions, mediated by economic insecurity, collective technological anxiety has no significant correlation to self-positioning in the left-right spectrum. Additionally, we find that both individual and collective technological anxiety are associated with more authoritarian preferences through their non-economic path. Overall, our findings present a nuanced and complex link between technological anxieties and political outcomes, contradicting simplistic accounts on the political consequences of automation.

Keywords: Economic insecurity; technological anxiety; support for liberal democracy; Latin America; political attitudes

JEL codes: D72; I31; O33

What is the political effect of the automation of jobs? Even if, in the aggregate or the long run, economic changes might increase society's overall economic performance, technological change, as well as other phenomena that affect the job market, increase the economic insecurity of segments of society (e.g. [Acemoglu and Restrepo, 2020](#)). This economic risk is associated with preferences gravitating towards populist parties ([Margalit, 2019](#); [Cammatt, Diwan and Vartanova, 2020](#); [Guiso et al., 2020](#); [Rodrik, 2021](#)). Furthermore, regardless of objective measures on the effect of automation, the existing literature suggests that perceptions of economic insecurity are significant predictors of populist and anti-establishment vote ([Mayer, 2014](#); [Rovny and Rovny, 2017](#); [Margalit, 2019](#); [Borwein et al., 2023](#)).

This paper examines the relationship between technological anxiety and political attitudes. On the one hand, most of the literature on the topic assumes that the effect of technological anxiety over

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political behavior is mediated by economic insecurity, especially anxieties over individuals' sources of income (e.g. [Kurer, 2020](#); [Milner, 2021](#)). The threat of automation - the replacement of workers by machines - is a particular component of the general risk of unemployment, along with others such as jobs going abroad, replacement by cheaper labour, and the disappearance of demand ([Im et al., 2019](#); [Acemoglu and Restrepo, 2020](#)). For example, [Acemoglu and Restrepo \(2020\)](#) show that for every additional robot per thousand workers, the employment-to-population ratio falls by 0.2 percentage points and wages fall by 0.42 per cent.

On the other hand, there is evidence that the changes in the job market have political impacts. There is a significant body of literature that shows economic insecurity is an important causal factor for support of populism (for a systematic review of the literature confirming the causal link between economic insecurity and populism, see [Scheiring et al. \(2024\)](#)). Consistently, the increase in the risk of losing one's job due to technological advancement is associated with support for both right-wing populist parties ([Frey, Berger and Chen, 2017](#); [Anelli, Colantone and Stanig, 2019](#); [Kurer, 2020](#); [Milner, 2021](#)), and, to some extent, left-wing parties pushing for income redistribution ([Gingrich, 2019](#)). However, the exact mechanism through which technological changes and their impact on the workplace affect political attitudes is still unclear ([Gallego and Kurer, 2022](#)).

We advance this discussion by presenting evidence of the complex relation between technological anxiety and political outcomes. We investigate the influence of technological anxiety by recognizing the importance of both individual and collective preoccupations on automation, as well as including a mediation analysis, that allows us to isolate economic and non-economic elements of these anxieties.¹ We use the *Latinobarometro* data from 18 Latin American countries to study the mechanism through which technological anxiety might affect political outcomes in this context. Expanding on the work of [Borwein et al. \(2023\)](#), we include in our analysis both perceptions of the effect of technological changes individually and over society as a whole. We innovate by including a mediation analysis that allows us to isolate the relevance of economic insecurity in the relation between technological anxiety and political outcomes.

We find that the effect of technological changes on citizens' attitudes goes beyond individuals' economic insecurity. Citizens' political positions are also predicted by their perception of the non-economic side of technological changes in ways that do not affect their perception of individual economic insecurity, what [Borwein et al. \(2023\)](#) call "status threats". Furthermore, in line with these authors we find that while individual level technological anxiety is associated with left leaning positions,

¹An unpublished manuscript by [Alez-Rostani \(2023\)](#) also undertakes a mediation analysis to explore the path through which the risk of automation affects populist support, using experimental data rather than observational data. In this study the mediation variables are "cultural" variables related to cultural grievances. While the results of this manuscript inform ours, there are substantial differences in the models: the distinction between individual and collective technological threats, the political outcomes, the role of economic insecurity, for instance, among others.

mediated by economic insecurity, collective technological anxiety is directly associated with right wing positions. Additionally, we find that individual technological anxiety is associated with more populist support only through economic insecurity, whereas both individual and collective technological anxiety are associated with less populist and more authoritarian preferences through their non-economic path. Overall, our findings present a nuanced and complex link between technological anxieties, subjective economic insecurity, and political outcomes, contradicting simplistic accounts on the political consequences of automation. Additionally, our research reinforces the need of expanding the geographic emphasis on developed economies, exploring these topics in low/middle income countries.

Why is technological anxiety relevant for political attitudes

In this study, we use the term “technological anxiety” to mean workers’ fear that jobs and associated traditional ways of life are under threat from technological advances. This fear has a long history with different expressions, but it is best known as the fear that: “technological progress will lead to widespread substitution of machines for labour, which in turn could lead to technological unemployment and a further increase in inequality in the short run, even if the long-term effects are beneficial” (Mokyr, Vickers and Ziebarth, 2015, p.32).

This economic concern is not limited to the Global North. Brambilla et al. (2023) present evidence of a similar impact of robot adoption in Latin America, particularly in the replacement of formal white-collar jobs, and among young and semi-skilled workers. Furthermore, Kugler et al. (2020) show that even if Latin American countries do not fully adopt new technologies, increasing automation in major trading partners such as the United States, could have a significant impact on the Latin American labour market. This issue is particularly important in a region where the majority of workers face inadequate and inconsistent protection against economic risks (Cruz-Martínez, 2019; Maurizio, Beccaria and Monsalvo, 2022). Despite progress in formal education, a significant proportion of the workforce remains self-employed in precarious occupations or employed in vulnerable and small enterprises with limited productivity (Levy and Cruces, 2021). All of these risk factors mean that Latin American workforce might be especially sensitive to the economic pressures of technological progress.

While this account of the way technological anxiety might influence political behaviour seems fairly robust, there are reasons to believe that mere expected individual economic deprivation is insufficient to explain the full effects of technological anxiety. As Mokyr, Vickers and Ziebarth (2015) explain: “Besides questions of employment and wages, technological innovation brings worries about the nature of work and the so-called alienation of labor” (p.38). In other words, some people might dislike technological change not merely because of the impact on their individual income prospects, but also

because of the “de-humanizing” impact it might have. This potential causal link mirrors the traditional argument presented by [Lipset \(1955\)](#) on the relevance of “status politics” for the emergence of radical right, in so far as changes in the job market can have impacts that go beyond direct material deprivation. More recently, [Gest, Reny and Mayer \(2018\)](#), argue that support for the radical right is not driven primarily by direct economic deprivation, but rather it is driven by the threat of a loss of status, a “nostalgic deprivation”, where “[The] natural order has since been disturbed by transformations of the global economy” (p.1699). This is also a similar argument to the one presented by [Gingrich \(2019\)](#) and [Kurer \(2020\)](#), who present evidence that the political effect of automation and changes in the job market operates through threats to the status of some workers.

The importance of studying this alternative mechanism through which technological anxiety affects political attitudes is especially important when citizens’ anxiety derives from perceived changes in society that do not affect them directly. [Granulo, Fuchs and Puntoni \(2019\)](#) present evidence of a marked difference in the way citizens react to the threat posed by automation when this threat is directed to other citizens’ jobs as opposed to when this threat is directed to individuals’ own jobs. Specifically, they find that people oppose the substitution of other workers in society with robots more than their own substitution. The authors explain this difference as a result of the fact that when thinking of other people’s jobs “prosocial” elements weigh more, however “being replaced by machines, robots or software (versus other humans) is associated with reduced self-threat”. In other words, individual technological anxiety is less strong when it comes to status threat. In contrast, the authors also find that being replaced by robots in one’s own job is associated with “a greater perceived threat to one’s economic future.” (p.1062). Overall, then, their findings would suggest that collective technological anxiety should have a stronger non economic effect, while individual technological anxiety should have a stronger effect on economic insecurity.

In the context of technological anxiety, egocentric evaluations of risk refer to insecurity at the personal level, i.e. the risk to one’s job, whereas sociotropic evaluations are based on perceptions of automation at the macro level, i.e. the risk for society as a whole ([Lockerbie, 2006](#)). Studies that have researched the negative relationship between individual economic insecurity and the demand for populist and extreme leadership have tended to focus on economic insecurity at the micro level (egocentric), either in terms of the risk of unemployment and financial distress, or in terms of the buffers or economic resources that an individual has to face possible future economic changes ([Guiso et al. \(2020\)](#); [Bossert et al. \(2023\)](#)). Studies show that sociotropic evaluations of economic changes have a weaker effect than egocentric ones on political mistrust and support for authoritarianism or right-wing populism, especially retrospective sociotropic evaluations ([Watson, Law and Osberg \(2022\)](#)); [Rebechi, Rohde and Anderson \(2022\)](#)).

As for technological anxiety, to the best of our knowledge, the only study to make a similar distinction between individual and collective perceptions has been [Borwein et al. \(2023\)](#) who isolated egocentric and sociotropic effects of technological anxiety over political outcomes in 15 European countries. However, this study does not include economic insecurity as a mediating variable (instead showing that technological anxiety can be predicted by economic insecurity). Nonetheless, [Borwein et al. \(2023\)](#) argue that individual technological anxiety affects political behavior of citizens through the perception of a “threat to their immediate material wellbeing” (p.3) (i.e. individual technological anxiety affects political behavior through the risk of economic deprivation), while collective technological anxiety affects political outcomes through citizens perception that automation “threatens their reference group’s perceived status in society” (p.3) (i.e. collective technological anxiety affects political behavior without the mediation of economic deprivation). Noticeably, they find these two types of technological anxiety have distinct and sometimes opposite impacts on political outcomes, with individual technological anxiety predicting left-wing preferences and collective technological anxiety predicting right-wing preferences.

Hypotheses

Our first hypothesis is on the relation between technological anxiety and economic insecurity, and is consistent with previous literature (e.g. [Mokyr, Vickers and Ziebarth, 2015](#)):

Hypothesis 1 (H1): Individuals with higher individual technological anxiety for their job (egocentric) will have higher levels of economic insecurity.

The augmented economic insecurity, implied by H1, might have political consequences. Our second hypothesis is that individuals with higher economic insecurity will represent a potential constituency for populist parties, and parties that place emphasis on an “elite versus people” anti-elitist discourse in the region. Similar to the historical trend of disaffected individuals negatively affected by globalization gravitating towards these parties ([Kriesi et al., 2006](#)), it is plausible that potential ‘automation losers’ may also find resonance within their ideological framework and migrate into their political fold. As [Im et al. \(2019\)](#) argue, these political forces have shown in the past a propensity to incorporate the issue of automation as a relevant concern, due to its effects on the economic security of certain workers. Additionally, and for similar reasons, we expect these respondents will tend to support more redistribution of income and therefore situate themselves in the left spectrum of their political context.

Hypothesis 2 (H2): Individuals with higher economic insecurity identify more with the left

Our third group of hypotheses distinguishes between the perception of technological anxiety in individual and collective terms. For example, while egocentric technological anxiety should affect political outcomes through economic insecurity, in the way described by H2, the sociotropic aspects of technological anxiety might affect political attitudes through a de-humanizing view of technology described by Moky, Vickers and Ziebarth (2015), which can be conceived as more traditionalist, authoritarian, and right-wing cultural concern with the effects of technological transformation of society.

Hypothesis 3a (H3a): Individually assessed levels of technological anxiety predicts more left leaning positions.

Hypothesis 3a.1 (H3a.1): mediated through economic insecurity (as implied by H2).

Hypothesis 3b (H3b): Individually assessed levels of technological anxiety (egocentric) predicts lower levels of authoritarian attitudes.

Hypothesis 3b.1 (H3b.1): mediated through economic insecurity (as implied by H2).

Hypothesis 3c (H3c): Collectively assessed levels of technological anxiety are positively associated to higher authoritarian preferences.

Hypothesis 3c.1 (H3c.1): without mediation of economic insecurity

Hypothesis 3d (H3d): Collectively assessed levels of technological anxiety are positively associated to more right leaning positions.

Hypothesis 3d.1 (H3d.1): without mediation of economic insecurity

Data and Methods

To test our hypotheses we use data from the *Latinobarometro* cross-national survey. The data was collected in 2020. This opinion poll includes more than 20.000 responses from 18 Latin American countries. There are some differences between the survey methods employed in each country (including the use of probabilistic sampling or quotas), but in each case the surveys target population is the entire population 18 years and older and the interviews were conducted face-to-face.²

²Detailed specifications of the survey method for each one of the 18 countries in the sample are available here <https://www.latinobarometro.org/latContents.jsp>

Measurement strategies

In this subsection we describe the variables and indices we use to measure our dependent variables (political outcomes), as well as our independent variables (technological anxiety), and intermediate variables (economic insecurity). We use traditional demographic control variables: sex, age, education. We also control for income. For this, we use Latinobarometro's income brackets, which depended on the distribution of income for each country.³

Dependent variables

As dependent variables, we use respondents' reported political attitudes in terms of left-right positioning and authoritarianism.⁴

Independent variables

We use two indicators measuring technological anxiety. These indicators measure different elements of technological anxiety. First, *Anxiety My Job* measures the perceived risk of automation for respondent's job by asking about the levels of agreement with the following sentence: "In 10 years time robots will have taken away my work place". Second, *Anxiety Society Jobs* measures respondents' general perception on technological advancements and their macro impact on work by asking for their level of agreement with the following sentence: "Artificial intelligence and robots will make disappear more workplaces than it will create". Table 1 presents the demographic predictors of both individual and collective technological anxiety. As for individual anxiety, only education levels are significant predictors, with higher levels of education associated to lower levels of individual technological anxiety. The other demographic characteristics are not found to be significant predictors for individual technological anxiety. As for collective technological anxiety, being a women and older is found to be associated with lower levels of collective anxiety. Noticeably, for collective anxiety higher levels of income and education are in fact associated with higher levels of collective anxiety (the opposite direction than that for individual anxiety). This contrast is coherent with individual anxiety being more closely related with fears of material deprivation, while collective anxiety being more strongly associated to status anxiety, as citizens with higher levels of income and education might perceive their higher status is at risk. Overall, Table 1 suggests collective and individual technological anxiety are not distributed in the same way across the population and seem to capture different aspects of

³In other words, income scale is defined within each country, and can only be taken in relative terms between countries (e.g. the income of a person in the lowest income group of one country is not necessarily in the lowest income group of another country)

⁴authoritarianism is measured as respondents level of agreement with the statement "I wouldn't mind if an undemocratic government came to power if it can solve the problems"

technological anxiety.

	Individual Anxiety.	Collective Anxiety
Intercept	2.422** (0.029)	2.755** (0.029)
Female	0.024 (0.013)	-0.030* (0.013)
Age	0.000 (0.000)	-0.001** (0.000)
University Education	-0.083** (0.021)	-0.039 (0.021)
Income	-0.002 (0.003)	0.021** (0.003)
R ²	0.001	0.005
Adj. R ²	0.001	0.004
Num. obs.	16443	16651

** $p < 0.01$; * $p < 0.05$

Table 1: Coefficient Estimates for technological anxiety, predicted by demographics and Technological anxiety

Results

Our two measures of technological anxiety are conceptually related and, unsurprisingly, their responses are somewhat correlated (correlation estimate is 0.528). However, they tackle different ways in which technological change can be reprieved as a force of change in the job market. While the first measure clearly emphasizes the negative impact of these changes for the respondent's material prospects, the second one emphasizes the collective impact of technology. Specifically, it is possible for respondents to see in technological advancement and automation a force that will destroy more jobs than it creates in society, without believing that their job is at risk. The key variable to determine how this societal change is perceived to affect one's job prospects is the way this change interacts with one's abilities.⁵ As Table 2 shows, when controlling for societal technological anxiety, more anxiety about the future of respondents' jobs is associated with more anxiety on their technological skills. On the contrary, controlling for the levels of anxiety for their job, more anxiety for society's jobs is associated with reduced levels of anxiety over one's skills: two respondents can have the same levels of anxiety for their jobs even if one of them has a stronger belief that there will be more jobs lost in general, as long as that respondent is also more confident about his or her skills.

⁵We measure anxiety over one's technological abilities as the level of agreement with the statement: "I am capable of managing new technologies at my workplace"

	Anxiety over one's technological skills		
	Model 1	Model 2	Model 3
Intercept	1.835** (0.031)	2.027** (0.032)	1.989** (0.034)
Individual Technological Anxiety	-0.009 (0.007)		0.036** (0.008)
Female	0.103** (0.012)	0.102** (0.012)	0.098** (0.012)
Age	0.009** (0.000)	0.009** (0.000)	0.009** (0.000)
University Education	-0.212** (0.019)	-0.211** (0.019)	-0.207** (0.019)
Income	-0.040** (0.003)	-0.039** (0.003)	-0.038** (0.003)
Collective Technological Anxiety		-0.077** (0.007)	-0.095** (0.008)
R ²	0.072	0.080	0.080
Adj. R ²	0.072	0.079	0.080
Num. obs.	15893	16077	15542

** $p < 0.01$; * $p < 0.05$

Table 2: Coefficient Estimates for technological anxiety, predicted by demographics and anxiety about one's technological skills

[Borwein et al. \(2023\)](#) find that age plays an important role in the levels of technological anxiety, with it being the only demographic characteristics that predicts both individual and collective anxiety. They find that personal technological anxiety is concentrated among younger citizens, while collective anxiety is concentrated among middle aged population. The authors hypothesize that this is because, by middle age, “many workers are settled into careers they see as personally stable” (p.14), but might still be concerned about the prospects of their identity groups. However, in our sample, we find little evidence of age being a strong predictor of individual anxiety, as can be seen in [Table 1](#). We do find that age is negatively correlated with collective anxiety and that, in general, younger respondents tend to be more collectively anxious, as can be seen in [Figure 1](#). Additionally, we find that confidence on one's technological skills is negatively and significantly correlated with age: the youngest respondents tend to have the highest levels of confidence in their own technological skills, while the oldest respondents have the lowest levels of confidence, as can be seen in [Figure 1](#). One possible explanation of the different distribution of anxiety in our sample is that young respondents' high levels of confidence on their technological anxieties prevent them from feeling personally anxious because of technological changes and that the relative economic stability assumed to reduce middle aged workers' personal anxiety in [Borwein et al. \(2023\)](#) sample of Western European countries, is not present in our sample of Latin American countries, where job markets are more precarious.

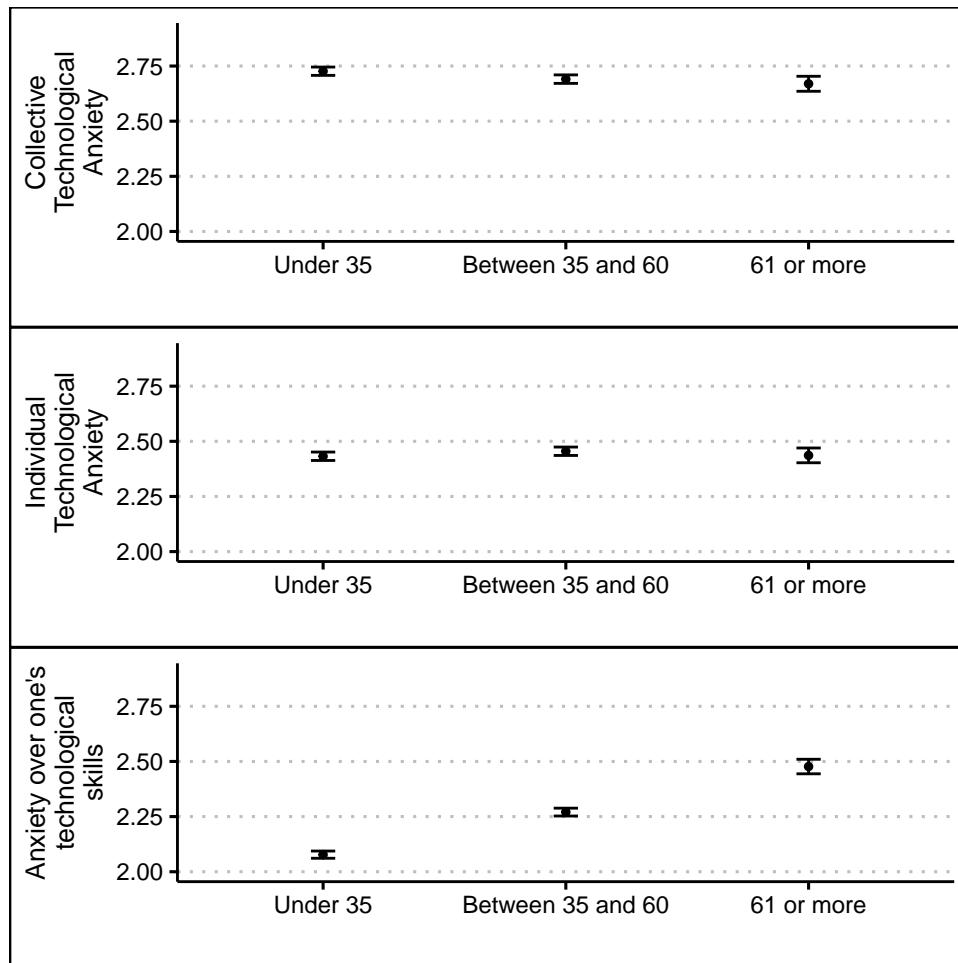


Figure 1: Average collective anxiety (top), individual anxiety (middle), and anxiety over one’s technological abilities (bottom) by age group

How anxious about technological change are Latin-americans

Regardless of the distribution of technological anxiety and its predictors, the political relevance of this attitude depends on the prevalence of concerns surrounding it. After all, whatever association there might be between technological anxiety and political attitudes, this the political outcomes of such link will depend on how widespread these concerns are. In other words, is technological anxiety something that looms heavily in the minds of Latin-american citizens?

In Figure 2 we present the percentage of respondents in each country of our sample that fall into the highest category of both individual and collective anxiety. Specifically, we present the proportion of respondents that declare that they ‘strongly agree’ with the statement ‘In 10 years from now robots will have taken away my work place’ (individual) and the statement ‘Artificial intelligence and robots will make disappear more workplaces than they will create’ (Collective)“.

On the one hand, the results point to collective anxiety affecting a larger proportion that that affected by individual anxiety (with the sole excpetion of Chilean respondents). On the other hand,

Figure 2 presents an important level of heterogeneity between countries. While Chileans with the highest levels of anxiety constitute a very small minority (6.8% and 4.94% for collective and individual anxiety respectively), in the case of Brazil, more than 40% of respondents fall in the highest level of collective anxiety and over 34% for individual anxiety. In this later case, these proportions point to an important level of prevalence of technological anxiety.

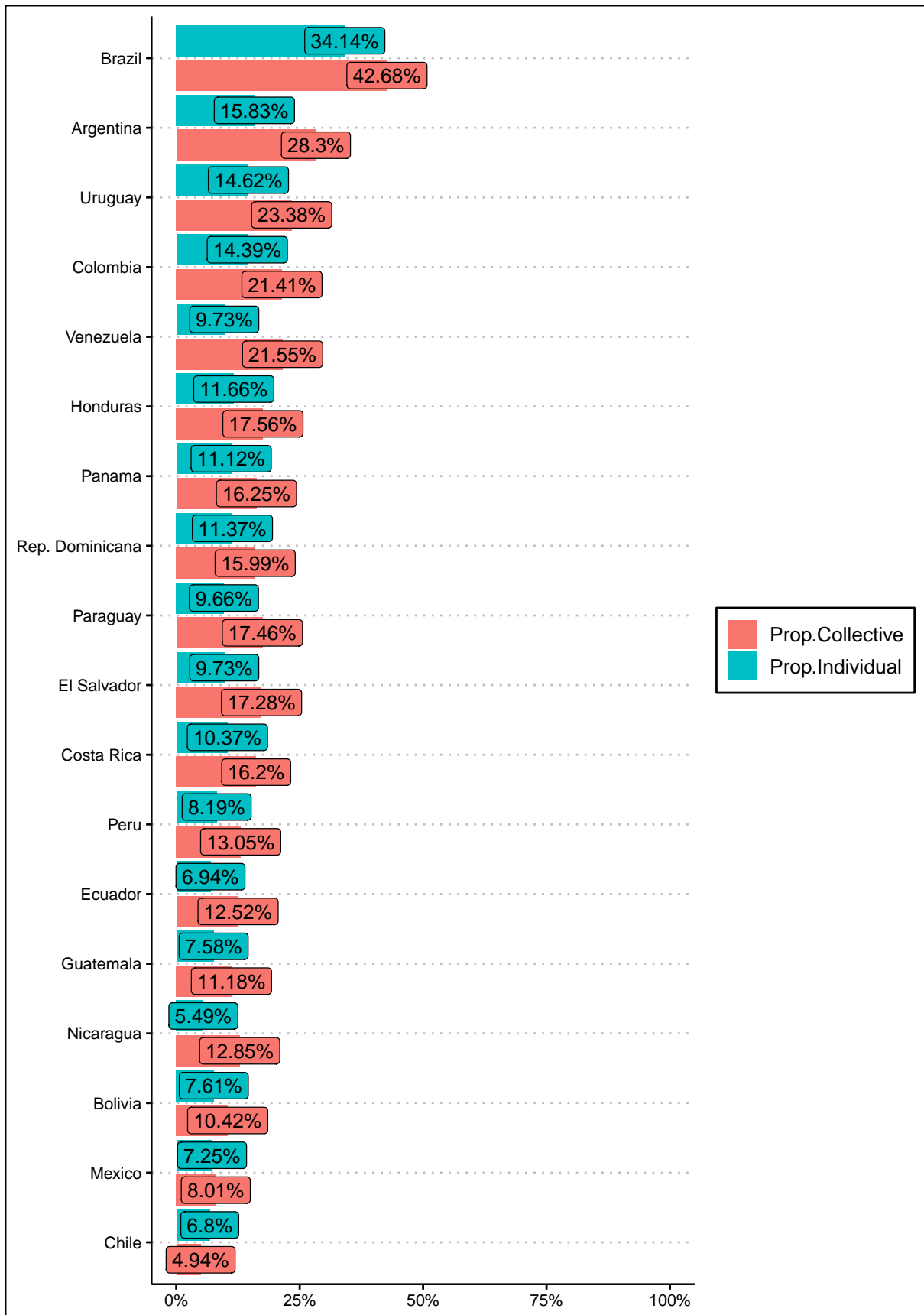


Figure 2: Proportion of respondents that declare that they 'strongly agree' with the statement 'In 10 years from now robots will have taken away my work place' (individual) and the statement 'Artificial intelligence and robots will make disappear more workplaces than they will create' (Collective)

Economic insecurity

Our mediation variable of interest is economic insecurity, specifically subjective economic insecurity. Economic insecurity is often defined as the inability to obtain protection against a potential financial loss that is perceived as subjectively significant (Osberg, 1998). Although past experience is the only evidence on which individuals can base their expectations, economic insecurity is driven by fears about the future (Osberg, 2015). To measure economic insecurity it is necessary to quantify both the (perceived) risk of loss and the (perceived) ability to protect oneself in case of a loss. Therefore, measures of economic insecurity can be grouped into two dimensions: i) the risk of households facing potential events that could lead to negative financial outcomes, such as unemployment, and ii) the lack of financial buffers to protect from negative outcomes if they arrive. This includes insufficient assets to cope with income losses or increased expenses, as well as lack of access to social protection mechanisms that could mitigate these economic losses (Prieto, 2022).

We first build an index to measure this construct. We include two indicators for each of the main dimensions of this concept discussed in the literature: as for perceptions on future losses, we include perception of future personal economic situation,⁶ and the perceived risk of losing employment.⁷ As for perceived buffers in case of loss, we include perceived capability of personal savings,⁸ and perceived existence of substantive social security net.⁹ We combine these four indicators as measures of the underlying perception of economic insecurity and deduce the loading of each indicator empirically through factor analysis. Figure 3 presents the results of this analysis. In Figures ?? and ?? in the appendix we show the robustness of this measure using other similar indicators available in the data set. We also find that the index adequately correlates with “objective” measures, such as home ownership or car ownership.

⁶The indicator asks for respondent's perception on “Future economic situation of the interviewee and his family”

⁷The indicator asks respondent how “Concerned about losing work within the next 12 months”

⁸The indicator asks the respondent if he or she considers “Social security 1- Fully guaranteed 2- Somewhat guaranteed 3- Not guaranteed 4- Not at all guaranteed”

⁹The indicator asks respondent “Does the salary you receive and your total family income allow you to cover your needs in a satisfactory manner?” eith possible answers “1- It's enough, we can save 2- It's just enough, we don't have major problems 3- It's not enough, we have problems 4- It's not enough, we have major problems”

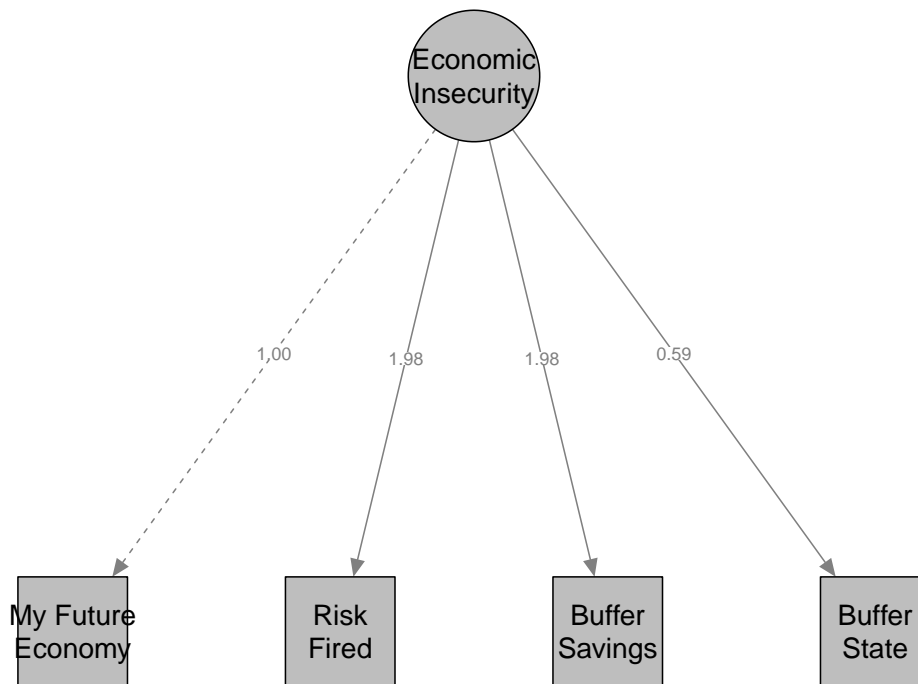


Figure 3: Economic insecurity as latent variable

Figure 3 shows that the main loadings (the underlying variable scale is pegged to the first indicator of perceived economic future) fall on the perception of being fired and of being capable of saving. In other words, being more economically insecure strongly predicts perceptions of job instability and lack of saving capability, and only to a lesser degree predicts perceptions of the state's generosity for social safety networks and general perceptions of future economic performance. From this indicators, we construct an index, which combines respondents' answers for each indicator, weighting according to the factor loading (factor score). This means that for every respondent we have a score representing the respondent's level of economic insecurity, which we can use as our mediation variable.

In Table 3, in model 1, we present regression models to detail the full correlations between the demographic characteristics of respondents and their perception of economic insecurity. As for age, Figure 4 shows that younger respondents tend to have lower levels of economic insecurity when compared to both middle-aged respondents and elderly respondents. This is consistent with the fact that this segment of society is also the least anxious about its technological abilities. Overall, it seems younger Latin-Americans are less pessimistic about their economic prospects.

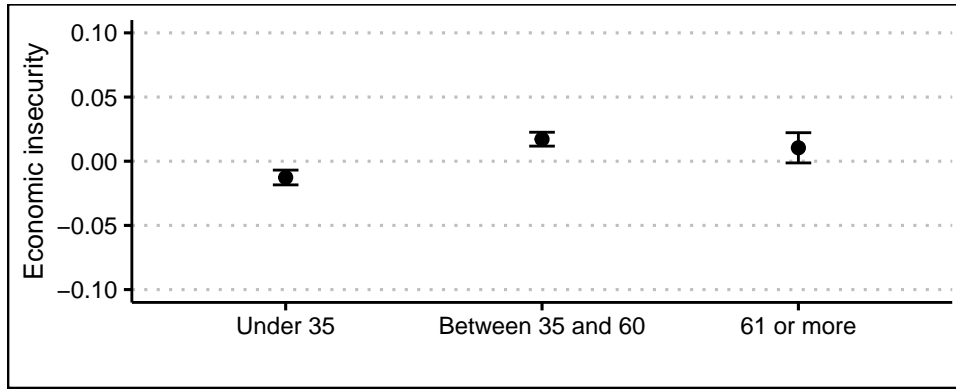


Figure 4: Average economic insecurity by age group

##Predictions of economic insecurity by technological anxiety

Table 3 presents the result of regressing economic insecurity over several demographic characteristics and different forms of technological anxiety. Model 2 includes only individual anxiety, model 3 only collective anxiety and model 3 includes both. The results shows both egotistic and societal technological anxiety are significant predictors of economic insecurity in model 2 and model 3. In other words, we find that people who either believe that their job is at risk or that jobs in society are at risk due to automation tend to have a higher perception of economic insecurity. Additionally, we find that age is positively correlated with economic insecurity. This correlation is consistent with the findings of the previous section, where we showed younger respondents tended to have lower levels of economic insecurity. This relation continues to be significant even when controlling for the other demographic elements. Additionally, we find that economic insecurity is negatively correlated with education and income, which is consistent with the better safety networks we would expect wealthier and more educated citizens to have. Additionally, in line with previous studies (Gingrich and Kuo, 2022; Egana-delSol et al., 2022), we find that economic insecurity is gendered, with women presenting higher levels of economic insecurity.

	Economic Insecurity			
	Model 1	Model 2	Model 3	Model 4
Intercept	0.029** (0.008)	-0.006 (0.010)	0.003 (0.010)	-0.012 (0.011)
Female	0.029** (0.004)	0.030** (0.004)	0.029** (0.004)	0.030** (0.004)
Age	0.001** (0.000)	0.001** (0.000)	0.001** (0.000)	0.001** (0.000)
University Education	-0.009 (0.005)	-0.008 (0.005)	-0.009 (0.005)	-0.008 (0.005)
Income	-0.027** (0.001)	-0.027** (0.001)	-0.027** (0.001)	-0.027** (0.001)
Individual Technological Anxiety		0.013**		0.012**

	Economic Insecurity			
	Model 1	Model 2	Model 3	Model 4
Collective Technological Anxiety		(0.002)	0.008** (0.002)	(0.003) 0.003 (0.003)
R ²	0.135	0.140	0.135	0.140
Adj. R ²	0.134	0.139	0.134	0.139
Num. obs.	10526	9999	10140	9812

** $p < 0.01$; * $p < 0.05$

Table 3: Coefficient Estimates for a Regression Model for Economic Insecurity

When including both forms of technological anxiety, in model 3, we find that the association between societal technological anxiety and economic insecurity is not significant. As Table 3 shows, while fear of losing one's job remains a significant predictor of economic insecurity (even controlling for a general loss of jobs in society), perceptions of a general job loss, controlling for perception of losing the respondent's job, does not significantly affect economic insecurity. In other words, believing automation will reduce the general number of jobs is not correlated with an increment in the perception of economic insecurity as long as the risk for one's job is not perceived to increase. We therefore find evidence in support of H1, "Individuals with higher technological anxiety for their job (egocentric) will have higher levels of economic insecurity".

The effect of technological anxiety on political attitudes

Figure 5 reflects the relation between technological anxiety and political preference. We see that anxiety over one's job predicts more economic insecurity and, through this increment, a more left wing position. However, collective anxiety is not found to predict left-right positioning. We therefore find evidence in support of H2, H3a (and H3a.1), but not H3d (nor H3d.1).¹⁰ In other words, technological change and the perception that it might destroy more jobs than the ones it create predicts an overall tendency leftwards, at least for some segments of society. Which individuals are predicted to move leftwards depends on whether they perceive technological change as more of an individual or collective threat.

¹⁰In the appendix, Figure 7 shows the unmediated correlation of technological anxieties with left right positioning. These associations are found to be non significant.

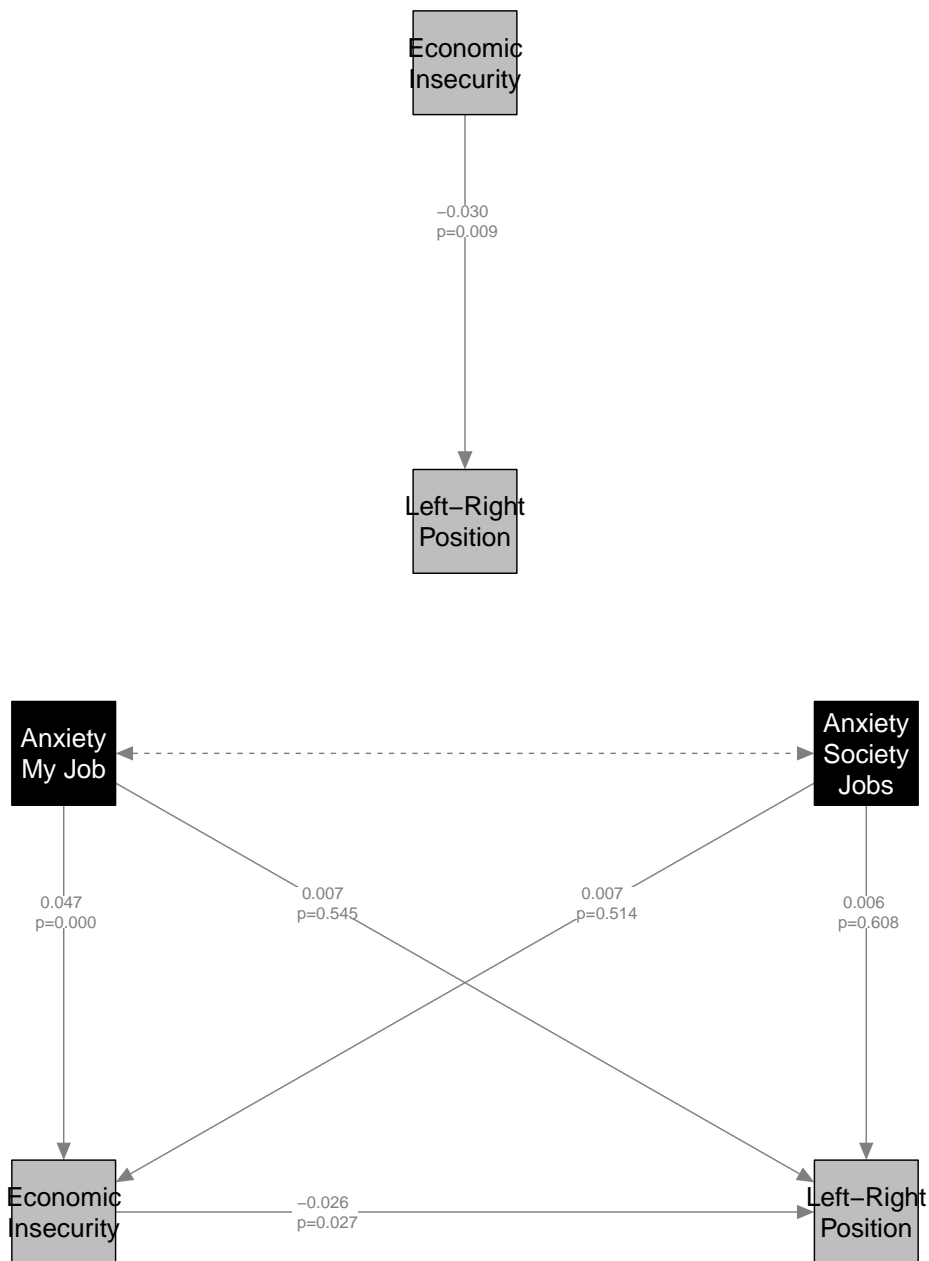


Figure 5: Economic insecurity predicting Left-Right positions (top). Technological anxiety predicting left-right positioning, mediated by economic insecurity. Controlling for sex, age, education and income (omitted from graph). Smaller values of left-right spectrum imply left-leaning positioning and high values right-leaning positioning

Coherent with this findings, Figure 6 shows similar patterns for respondents' levels of authoritarianism.¹¹ That is, controlling for economic mediation, citizens who are more anxious about technology, both in egocentric and sociotropic ways, tend to have a more authoritarian attitude. These findings

¹¹In Figure ?? in the appendix, we similarly find that egotistic anxiety over one's job does in fact predict less support for democracy only through the non-economic (status), but collective anxiety is not a significant predictor in this case.

of a non-economic path for technological anxiety to influence political attitudes are consistent with the 'status' perspective on anxiety towards technological change and support H3c (and H3c.1). In the appendix, Figure 10 shows that the total association of individual technological anxiety is, in fact, negative towards anti-elite parties.

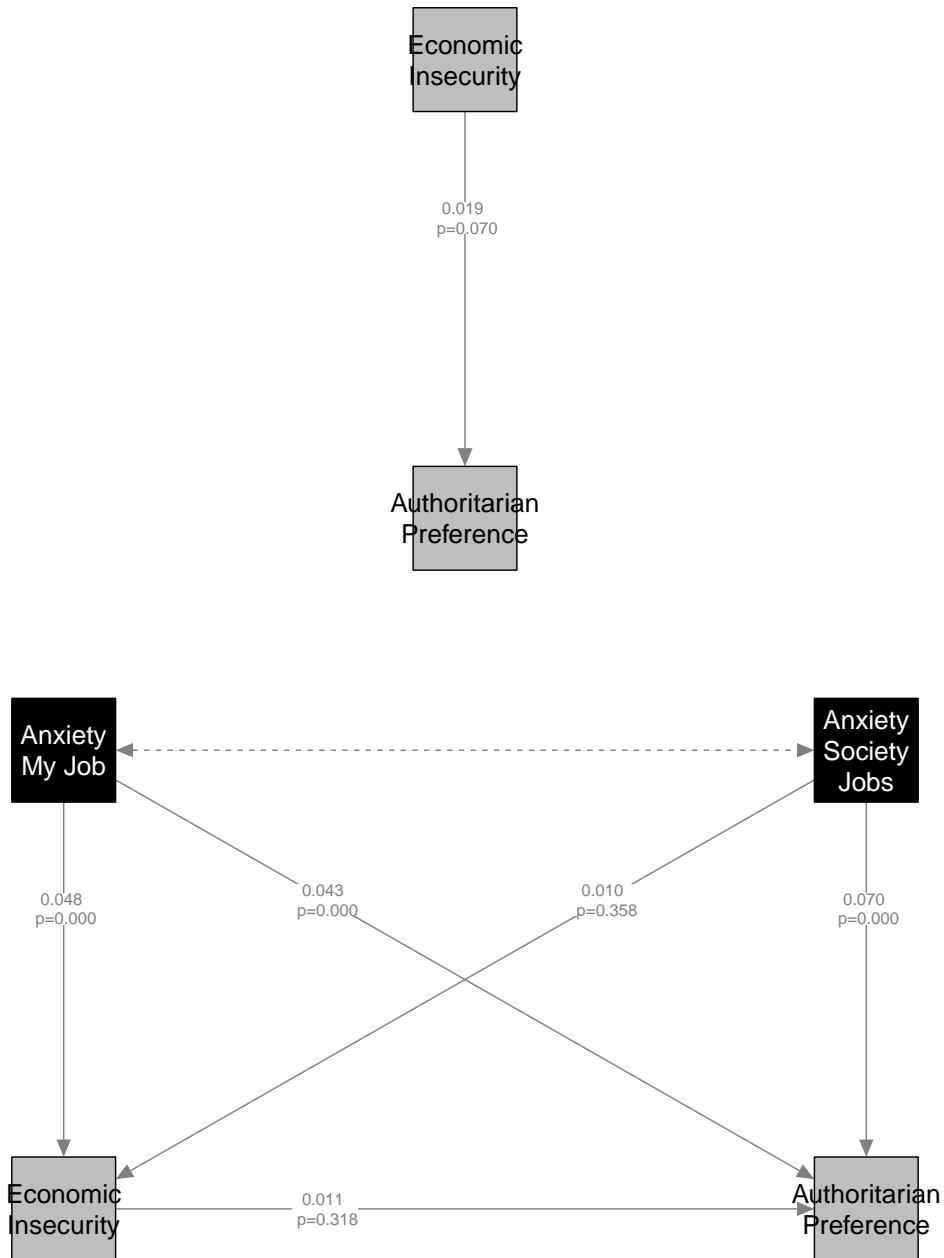


Figure 6: Technological anxiety predicting authoritarian support, mediated by economic insecurity. Controlling for sex, age, education and income (omitted from graph)

Conclusion

Technological advances can change economic, social, and political relations dramatically. It is therefore not surprising that any major technological change is accompanied by anxiety, especially for the segments of the population that see their employment perspectives most affected. However, technological changes and the anxiety they bring can have effects over citizens' political attitudes that go beyond economic concerns. Change produces anxiety, even when people can feel safe about their economic perspectives. In this paper we have studied how the threat of automation - the replacement of workers by machines - might impact political outcomes either directly or through an increment in perceived economic insecurity. We have studied a particular region, Latin America, marked by its status of middle income countries, relevant level of income inequality, and, overall, relatively unstable democratic regimes.

Concretely, we find that it is important to distinguish between citizens who perceive new technology will affect their jobs from those who may see this technological changes as detrimental for society as a whole. More technologically anxious citizens have a tendency to hold positions that might be detrimental for liberal democracy, but in very different ways depending on the type of technological anxiety they feel.

In the case of people who feel their jobs are at risk due to technological advancements, they tend to be more economically insecure and this insecurity is associate with political positions that gravitate towards leftist populist/anti-elite positions. At the same time, controlling for economic insecurity, more anxiety about one's job is associated with less anti-elitism support and more authoritarian demand. Egocentric anxiety's effect overall is, therefore, ambiguous, as economic and non-economic factors seem to push in opposite directions. On the other hand, citizens who are anxious about technological advancement's effect on society, but do not perceive their jobs are in risk are not more economically insecure. These citizens, who are sociotropically concerned with the effect of technological change on society, gravitate away from anti-elitist parties and towards the political right, and tend to hold authoritarian attitudes.

In other words, our findings suggest that technological anxiety brings forth conflicts with liberal democracy in ways that are markedly different, depending on the combination of individual/collective concerns, as wells as the combination of economic/non-economic paths these technological anxieties follow. While collective anxiety is found to always predict more authoritarian/right wing potions individual anxiety might reinforce economic insecurity and through this path strengthen leftist anti-elite/populist discourse. while we cannot assign a precise meaning to the non-economic elements of technological anxiety, previous ([Granulo, Fuchs and Puntoni, 2019](#)) and ongoing ([Alez-Rostani, 2023](#))

research might suggest that technological anxieties engage with the cultural/status concerns that are typically associated with the emergence of the far right.

Our paper brings to the fore questions on the way technological advancements might stress democratic rules, specifically in middle income countries, like the ones in Latin America. This is particularly relevant because, while these countries are exposed to a significant risk of democratic backsliding (e.g. [Pérez-Liñán, Schmidt and Vairo, 2019](#)), there is an important gap in the literature on the way technological anxiety might affect political outcomes outside the global north. Our findings suggest that, in the efforts to avoid democratic backsliding, there might be an important role for policies that reduce economic insecurity, for example by investing in technological skills or creating safety networks for workers that cannot save enough to form their own buffers. However, our results also suggest that some elements of technological anxiety and its effect on the support of democracy escape economic insecurity, and would require to tackle non-economic concerns in the population about technological progress.

Appendix

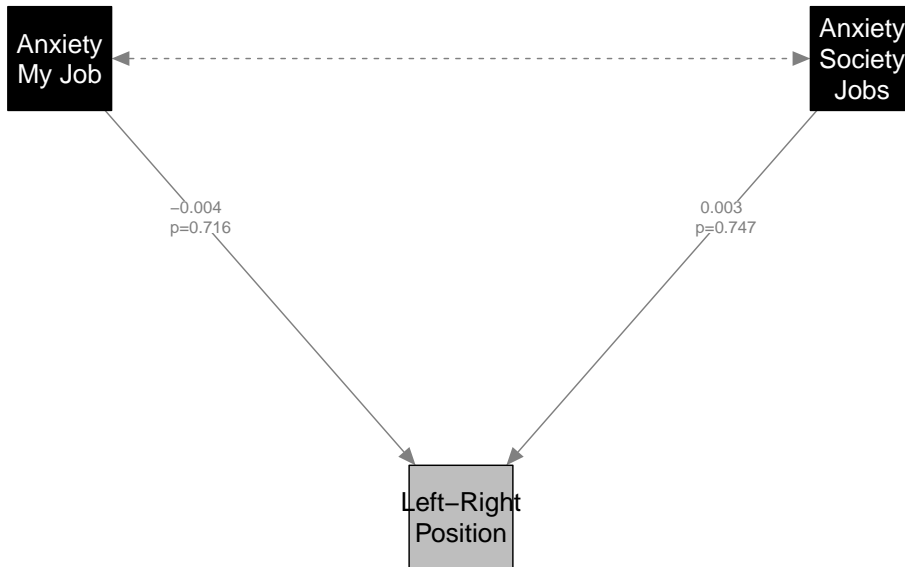


Figure 7: Technological anxiety predicting left-right positioning without economic mediation. Controlling for sex, age, education and income (omitted from graph). Smaller values of left-right spectrum imply left-leaning positioning and high values right-leaning positioning

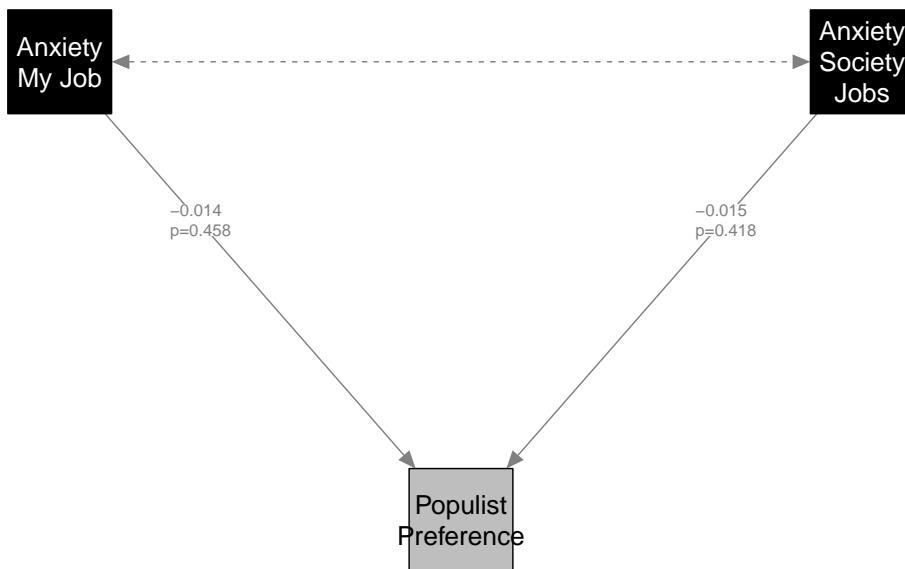


Figure 8: Technological anxiety predicting vote for parties opposing elite to people. Controlling for sex, age, education and income (omitted from graph)

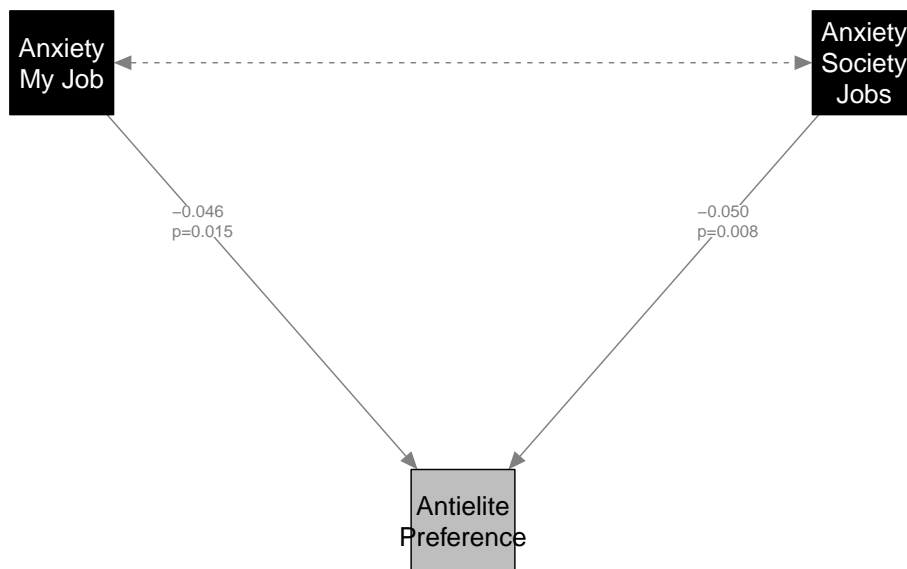


Figure 9: Technological anxiety predicting vote for parties with salient antielite discourse. No mediation. Controlling for sex, age, education and income (omitted from graph)

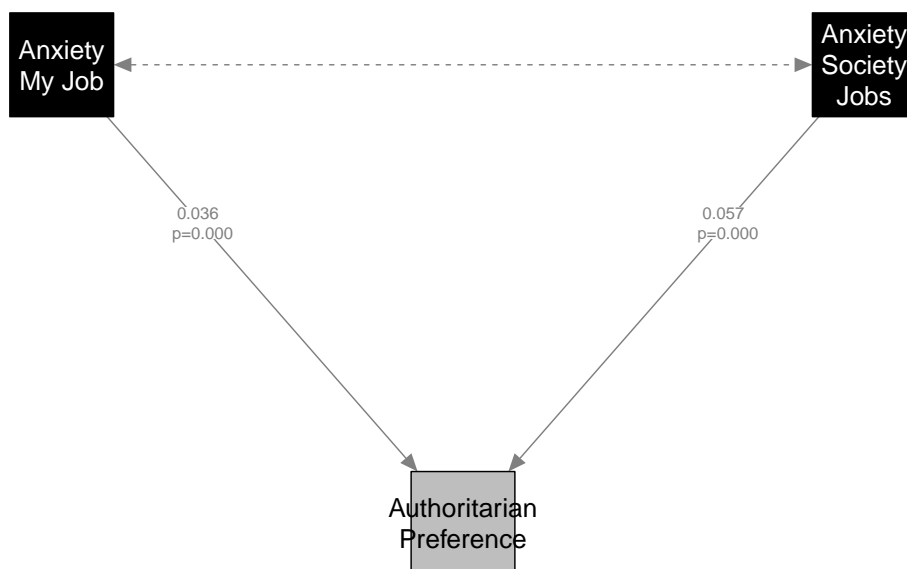


Figure 10: Technological anxiety predicting authoritarian support, mediated by economic insecurity. Controlling for sex, age, education and income (omitted from graph)

The role of technological anxiety on attitudes towards democracy mediated by economic insecurity

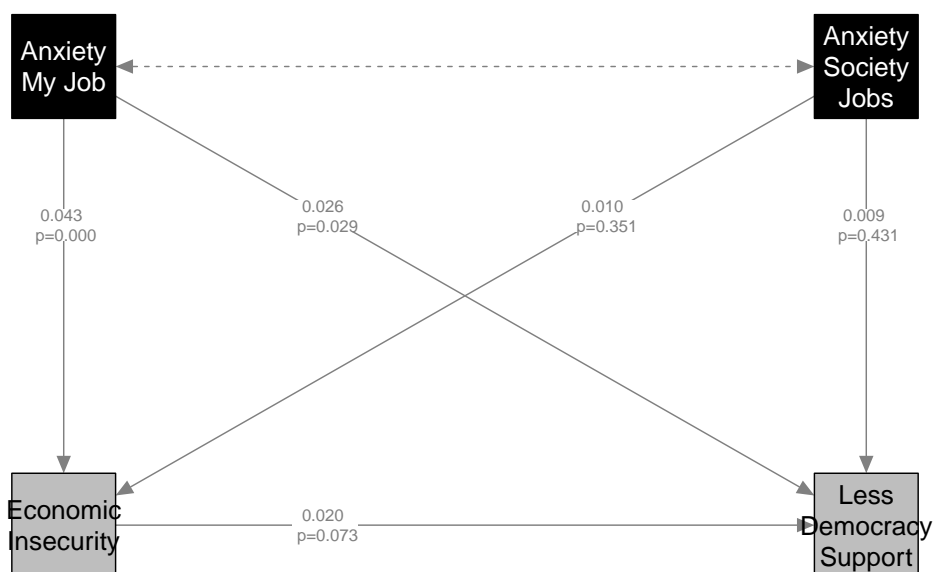


Figure 11: Technological anxiety predicting democratic satisfaction, mediated by economic insecurity. Controlling for sex, age, education and income (omitted from graph)

The effect of technological anxiety on political preferences

We now present the results for the subsample of 12 countries we obtained by combining the Latino-barometro data with the 2020 Chapel Hill Expert Survey.

In line with the previously discussed literature on the relation between economic insecurity and technological anxiety with populism, we see in Figure 12 that more individually anxious citizens present more economic insecurity and that economically insecure citizens gravitate somewhat towards supporting more populist parties.

Figure 8 shows the unmediated correlation of technological anxieties with preference for populist parties. These association are found to be non significant.

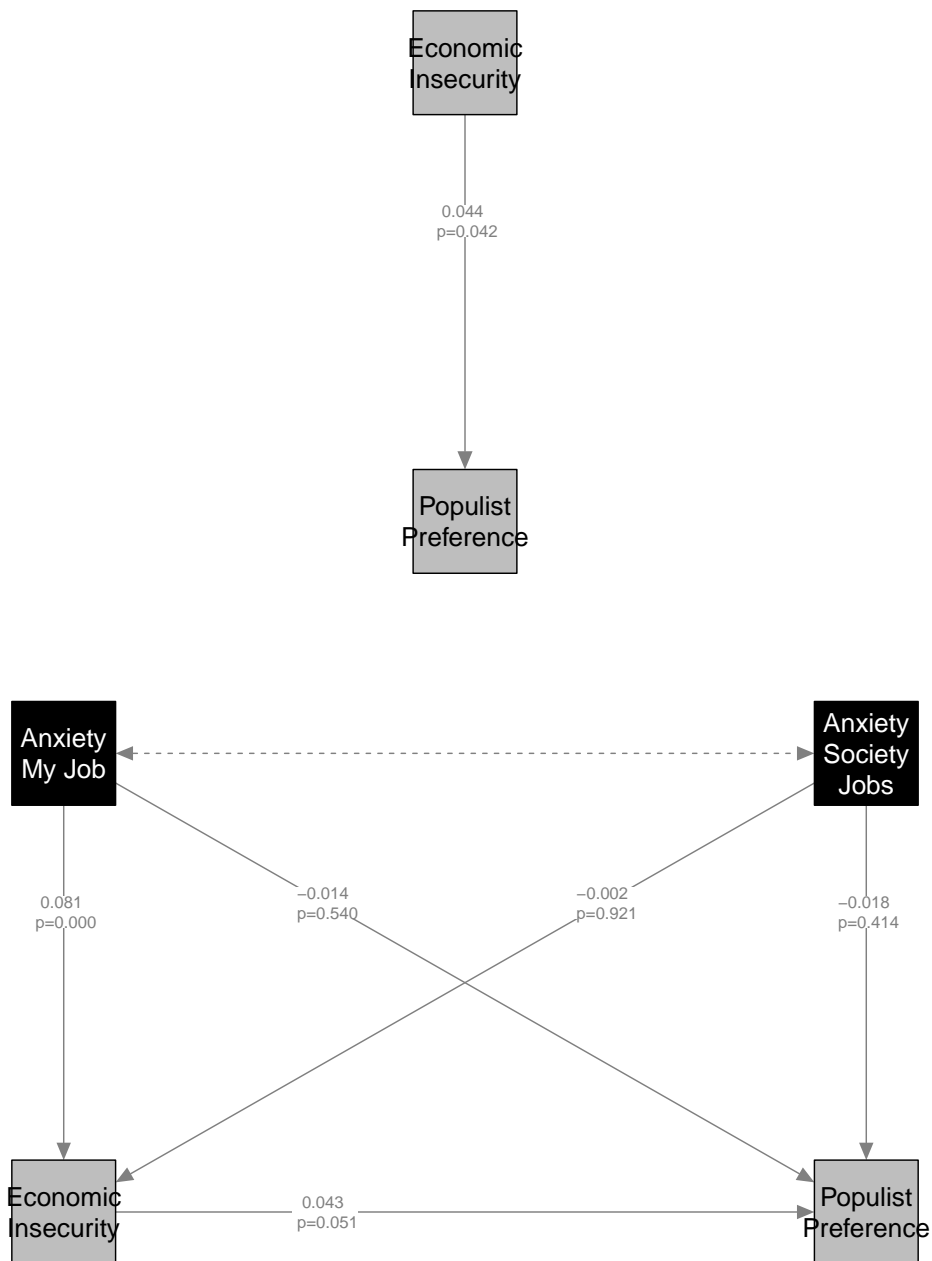


Figure 12: Technological anxiety predicting vote for parties opposing elite to people. Controlling for sex, age, education and income (omitted from graph)

As Figure 13 shows, the association of technological anxiety is more clearly significant when it comes to anti-elitism, but somewhat contradictory. While the effect of economic path of technological anxiety is significantly associated with support for more anti-elitist parties, the collective side of technological anxiety predicts less support for anti-elitist parties. However, somewhat unexpectedly, egocentric technological anxiety has an ambivalent relation with anti-elitism. On the one hand, via economic insecurity, it is associated with more support for anti-elitist parties. On the other hand,

controlling for this economic pass, egocentric anxiety, like sociotropic anxiety, is associated with less support for anti-elitist parties. In the appendix, Figure 9 shows that the total association of individual technological anxiety is, in fact, negative towards anti-elite parties, implying non-economic elements overcome the economic tendency to prefer anti-elite parties. We therefore do not find evidence supporting H3b: more individually anxious citizens do not present a stronger preference for anti-elite parties, even though the economically mediated path has the expected sign.

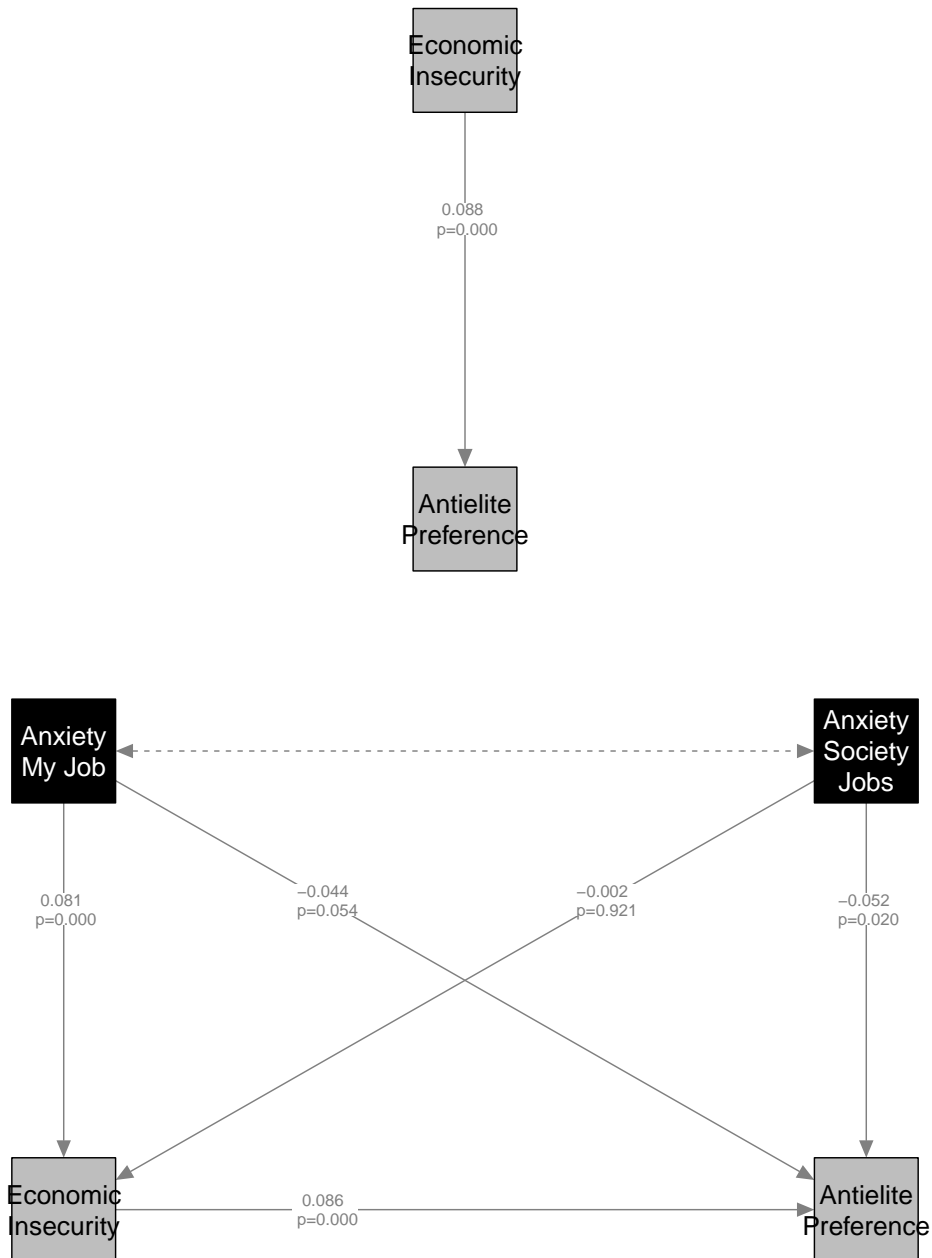


Figure 13: Technological anxiety predicting vote for parties with salient antielite discourse. Controlling for sex, age, education and income (omitted from graph)

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