



Popular autocrats: why do voters support Viktor Orbán's government in Hungary? A quantitative analysis

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Abstract

Authoritarian populism has become an increasingly prevalent subtype of hybrid regime and is characterized by weakened democratic institutions and a leader who relies on populist appeals. Authoritarian populist regimes limit citizens' freedom, undermine accountability and the rule of law, and are likely to be more corrupt than democratic regimes. Nevertheless, certain authoritarian populist regimes appear to enjoy broad popular support. Based on the European Social Survey database and my calculations of respondents' personal income tax rates, I investigate the factors that influenced voters' support for Viktor Orbán's government in Hungary from 2010 to 2020, which may be considered an exemplary case of an autocratic populist regime. The analysis shows that voters' support for the government was influenced by their perceptions of the economy and government performance, political beliefs (i.e., policy congruence and ideology), and basic human values (i.e., self-transcendence and conservation). By contrast, changes in voters' individual economic conditions were not found to be associated with their support for the government. The findings indicate that, in addition to explanations of government support that specifically focus on hybrid regimes, economic voting theory, which originated from and has typically been applied in democratic contexts, also provides viable explanations for understanding support for authoritarian populist regimes. More broadly, the findings also lend support to the altruistic and expressive voter hypotheses.

Keywords Authoritarian populism · Hungary · Economic voting · Performance voting · Ideological voting · Basic human values

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1 Introduction

Since the late 1990s, the third wave of democratization has given way to the third wave of autocratization (Diamond, 2021; Lührmann & Lindberg, 2019). Autocrats have been present throughout human history, but contemporary autocrats seem to systematically differ from their predecessors. Typical 20th-century tyrants such as Adolf Hitler, Joseph Stalin, and Mao Zedong relied on overt repression, extensive censoring, and intimidation to enforce compliance of the populace and organized elections for symbolic purposes only. By contrast, their present-day counterparts, which Guriev and Treisman (2022) dubbed “spin dictators” in analogy with spin doctors, cultivate a legal and democratic facade, resort to hidden repression and partial control of the media, and seek to remain popular, typically by utilizing populist strategies. Although they manipulate election rules and harass the opposition, election outcomes are not predefined (*ibid.*). This regime type, which features a mix of authoritarian and populist traits, is often referred to as authoritarian populism (Ádám, 2019; Diamond, 2021; Hall, 1979; Norris & Inglehart, 2019; Rogers, 2020).

Indeed, although popularity poll results should not be taken at face value in such contexts, certain authoritarian populist regimes appear to enjoy broad popular support (Guriev & Treisman, 2022; Svoboda, 2019). This is a puzzling pattern, as such regimes curtail citizens’ freedom in various ways, undermine accountability and the rule of law (Diamond, 2021; Guriev & Treisman, 2022; Norris & Inglehart, 2019), and suffer from higher levels of corruption than democratic regimes (Dimant & Tosato, 2018). Against this background, the present article asks why voters support autocratic populist regimes.

This ambition is relevant for the following reasons. Firstly, economic and performance voting theories, which broadly refer to two partially overlapping sets of theories about how economic factors and government performance affect political preferences (Stiers, 2022), originate from and have been mainly applied in liberal democratic contexts or transitioning democracies (*for reviews, see* Lewis-Beck & Stegmaier, 2008; Lewis-Beck & Stegmaier, 2019). However, research on the applicability of these theories in other, less democratic (particularly authoritarian populist) contexts is scarce (*a notable example being* Lewis-Beck et al., 2014, *who focused on China*). Given that political context substantially influences how economic conditions affect political preferences (Lewis-Beck & Stegmaier, 2019), this is a significant gap.

Secondly, a large body of research focuses on explaining how different types of hybrid regimes have emerged and prevailed (Cianetti et al., 2018; Diamond, 2021; Evans, 2024; Guriev & Treisman, 2019, 2019; Levitsky & Ziblatt, 2018; McCoy et al., 2018). The majority of contributions in this vein “focus on regime strategies and tend to neglect the attitudes of citizens” (Lavrič & Bieber, 2021, p. 18). Given the importance of popular support in maintaining autocratic populist regimes, drivers of voter preference deserve more scholarly attention. The few analyses that consider factors that influence voters’ attitudes towards autocratic and/or populist regimes and actors (e.g., Lavrič & Bieber, 2021; Akkerman et al., 2017; Baro, 2022; Lewandowsky & Jankowski, 2023; Marcos-Marne, 2021; Scoggins, 2022) typically focus on one or two potential factors, such as issue positions, populist and autocratic attitudes, ideologies, and human values. By building on and contributing to these findings, the present analysis simultaneously examines several factors, which enables a comparison of their effect sizes.

The empirical analysis focuses on Hungary, where a self-proclaimed “illiberal” model was implemented following the election victory of a coalition consisting of Viktor Orbán’s Fidesz and the Christian Democratic Party (KNDP) in 2010. Since then, democratic institutions have significantly deteriorated as the government dismantled the system of checks and balances and the rule of law, took control of most independent media outlets, and implemented changes in the electoral system that largely favored the government (Bogaards, 2018). In spite—or perhaps as a consequence—of these tendencies, the coalition has won three elections since then (in 2014, 2018, and 2022) and enjoys relatively broad popular support.

Hungary may be labelled a “laboratory of illiberalism” (Krekó & Enyedi, 2018) and is regarded as a potential model for authoritarian populist leaders around the world. Therefore, it stands out as an exemplary case of a de-democratizing country (Bogaards, 2018) and arguably of an authoritarian populist regime; that is, it “is not only of importance in itself but is also instructive for comparativists with no special commitment to this particular instance” (Whitehead, 2002, p. 213). The case selection is also justified by a large-scale tax reform that was implemented between 2011 and 2013. The reform, which affected various subgroups in distinct ways (Krekó et al., 2023), provides a unique opportunity for a natural experiment to test the effects of voters’ economic conditions on their political preferences. Finally, although numerous articles have sought to elucidate the factors underlying Hungary’s shift towards authoritarian populism and the mechanisms that sustain the regime (Ádám, 2019; Buzogány, 2017; Krekó & Enyedi, 2018; Scheiring, 2020), to the best of my knowledge, only Scoggins (2022) addressed this issue by considering the drivers of voters’ individual preferences. However, his analysis only considered two potential factors (economy and culture). By contrast, the present study aims to assess a range of potential drivers.

From a more practical and normative perspective, understanding the means through which authoritarian populist leaders appeal to voters and maintain their regimes (often relatively smoothly and without facing significant popular backlash) is imperative to designing and implementing effective responses from opposition parties, civil society actors, and international and intergovernmental organizations.

The article is organized as follows. Firstly, I discuss the concept of authoritarian populism. Then, I examine various theories and mechanisms that can explain the support for authoritarian populism. This is followed by a presentation of the Hungarian case. Subsequently, I formulate the hypotheses and present the data and methods employed. The empirical analysis is then presented, followed by a discussion of the results. Finally, I conclude the study by summarizing its findings and addressing its limitations.

2 Defining authoritarian populism

Compelling evidence supports the contention that democracy is declining and that this trend has accelerated over the past decade or so (Diamond, 2021; Hellmeier et al., 2021; Lührmann & Lindberg, 2019). This trend affects both new and established democracies in all regions (Diamond, 2021). While coups and open election-day frauds still occur, they are much less frequent than before (Bermeo, 2016; Guriev & Treisman, 2022). Most recent and ongoing episodes of democratic decline are incremental and, crucially, orchestrated by democratically elected politicians (Diamond, 2021; Levitsky & Ziblatt, 2018). Populism,

which is defined as a “thin-centred ideology that considers society to be ultimately separated into two homogeneous and antagonistic groups, the ‘pure and wise people’ versus ‘the corrupt elite’, and which argues that politics should be an expression of the *volonté générale* (general will) of the people” (Mudde, 2004, p. 543), has often been at the core of strategies applied by recent would-be and actual authoritarians (Norris & Inglehart, 2019).

Despite the diversity of countries that have experienced democratic decline, many of the processes and tactics applied show remarkable similarities (Diamond, 2019; Guriev & Treisman, 2022; Levitsky & Ziblatt, 2018). Upstart populist politicians exploit and fuel existing frustrations and factions within societies and promote an “us vs. them” narrative to gain a political advantage (McCoy et al., 2018). When they are elected, they first loosen institutional checks and balances and further fuel divisions to ensure that violations of various democratic norms seem increasingly justifiable to supporters of the regime. They claim to directly represent “the people,” which justifies bypassing democratic procedures and institutions (Diamond, 2021). Taking advantage of the loosened democratic controls, they take over the free media and assert control over various economic sectors. Civil society organizations, universities, and other independent and critical organizations are also labelled as enemies and harassed through various means as checks on the regime’s power loosen. Moreover, would-be autocrats systematically manipulate election rules to tilt the playing field in their favor (Diamond, 2019). Alberto Fujimori (Peru), Recep Tayyip Erdoğan (Turkey), Orbán (Hungary), Jair Bolsonaro (Brazil), and many others have used this playbook. While this process has been less severe (at least to date) in the United States, it also showed striking similarities with the above countries under the leadership of Donald Trump (Levitsky & Ziblatt, 2018).

Importantly, to mitigate external and internal backlash, authoritarian populists refrain from overt repression and violence and cultivate a democratic facade by (nominally) maintaining basic democratic and rule-of-law institutions. While some commentators have argued that regimes tend to transition towards either democracy or autocracy (Acemoglu & Robinson, 2013), hybrid regimes appear to be relatively stable, at least in the short and medium terms (Guriev & Treisman, 2022).

According to Guriev and Treisman (2022), the emergence and durability of authoritarian populist regimes may be explained by a so-called “modernization cocktail”: the postmodern transition after World War II empowered informed elites who are more difficult to repress, while economic and informational globalization and the rise of the liberal world order have made it challenging to maintain isolated fear dictatorships due to increased international focus on human rights.

Consequently, authoritarian populism—a sub-type of hybrid regime—may be defined as “an exceptional form of the capitalist state, which, unlike classical fascism, has retained most (though not all) of the formal representative institutions in place, and which at the same time has been able to construct around itself an active popular consent” (Hall, 1979, p. 15). In other words, authoritarian populism is a type of regime that largely relies on populism to enable and justify authoritarian measures and to gain, consolidate, and increase its power while typically maintaining a democratic facade. Terms with relatively similar meanings include illiberal (as opposed to liberal) democracy (Wagrandl, 2021), populist democracy (Pappas, 2014), competitive authoritarianism (Levitsky & Way, 2002), and informational autocracy (Guriev & Treisman, 2019).

3 Factors influencing support for authoritarian populist regimes: theory, evidence, and hypotheses

As the preceding discussion shows, although various democratic institutions are dismantled or hollowed out in authoritarian populist contexts and elections are not free and fair, the latter are of crucial importance because they constitute the main tools for justifying the regime. Unlike “old-style” autocracies in which dictators “win” nearly 100% of votes, autocratic populist regimes must compete in competitive elections and enjoy significant popular support. Consequently, they must appeal to voters like their democratic counterparts. This section reviews the most important mechanisms through which they may do so.

3.1 Economic and performance voting

Within the realm of political economy, there are two large and somewhat overlapping sets of theories that explain voters’ political preferences: economic voting and performance voting (Stiers, 2022). Economic voting theory focuses on how broadly understood economic factors affect voters’ political preferences. Classical economic voting theory postulates that voters consider the economy as a valence issue, punish incumbents for bad times, and reward them for good times. Economic voting can be broken down into two broad elements. Firstly, voters’ individual economic situations may influence their political preferences (i.e., egotropic or pocketbook voting). Secondly, voters may also consider the economy as a whole (i.e., sociotropic voting) and focus on unemployment, growth, inflation, and other characteristics of the national economy. Both the egotropic (Healy et al., 2017; Lewis-Beck, 1985) and sociotropic (Duch & Stevenson, 2008; Lewis-Beck & Nadeau, 2011; Stiers, 2022) economic voting theories have received significant empirical support (*for a review, see Lewis-Beck & Stegmaier, 2019*).

Originating from egotropic economic voting theory, the taxpayer retribution hypothesis posits that taxpayers punish incumbents for raising taxes (Kone & Winters, 1993). While the authors found some support for the hypothesis in the United States, they also showed that voters do not reward incumbents for tax cuts. Similarly, the grievance asymmetry hypothesis posits that individuals negatively impacted by tax reforms care more about these reforms than those who benefit from them (Geys & Vermeir, 2008).

Later, the classical economic voting model has been broadened to incorporate new elements. Positional voting considers voters’ policy preferences with regard to economic issues (e.g., preferred level of redistribution), whereas patrimonial voting posits that voters’ political preferences are shaped by their acquired status in terms of class membership and wealth (Lewis-Beck & Nadeau, 2011).

The vast majority of research on economic voting focuses on democracies, but some evidence suggests that economic voting mechanisms are also applicable in fragile and transitioning democracies (Lewis-Beck & Stegmaier, 2008, 2019; Stegmaier & Lewis-Beck, 2009). Although a recent cross-national analysis showed that authoritarian leaders’ popularity also depends on individuals’ perceptions of the economy (Guriev & Treisman, 2020), research on the applicability of economic voting theories in hybrid regimes is limited at best.

Partially overlapping with economic voting theory, performance voting theory (Healy & Malhotra, 2013; Stiers, 2022) hypothesizes that voters cast their votes based on how they evaluate the government’s performance (either in general or in various areas, such

as education, crime, health services, and the economy—the last element is the one where the two streams overlap). Similarly to economic voting theory, performance voting theory has received considerable empirical support, mainly in democratic contexts (Kotzian, 2011; Stiers, 2022). Both economic and performance voting may be retrospective and prospective; that is, voters may consider both the past and the expected performance of the government and economic conditions (Stiers, 2022).

3.2 Political beliefs: policy congruence, ideology, and attitudes

Another largely heterogeneous set of theories focuses on how voters' political beliefs affect their political preferences. One such stream of research focuses on how voters' issue positions and policy preferences in various areas shape their political preferences. Indeed, evidence has shown that policy congruence (i.e., congruence between voters' preferred policies and policies proposed by candidates) largely matters in various contexts (Graham & Svulik, 2020; Jastramskis, 2022). However, the majority of voters do not possess detailed knowledge about parties' issue positions. Therefore, more general political ideologies, particularly left- versus right-wing positions, may serve as cues for vote choice (i.e., ideological voting; Sartori, 2005; Van Der Brug, 2010). Lachat (2008) found that political polarization—a phenomenon that often accompanies authoritarian and populist tendencies—increases the effect of left-right ideology on vote choice.

Some recent survey experiments have shown that voters are willing to make trade-offs between democracy and policy congruence in that they may choose politicians with anti-democratic traits who promote preferred policies over democratic politicians who promote different policies (Graham & Svulik, 2020; Lewandowsky & Jankowski, 2023). However, supporters of populist parties not only trade off democratic principles in favor of their policy preferences, but they also care less about democracy and sympathize more with populist ideologies. So-called populist values or attitudes—a set of correlated values that capture the extent to which people identify with different elements of the minimalist definition of populism (in particular with claims about the exclusive power of the “people” vs. others)—are observed to a greater extent among supporters of populist parties than supporters of other parties (Akkerman et al., 2014, 2017; Marcos-Marne, 2021; Van Hauwaert & Van Kessel, 2018). More recently, a survey experiment conducted in Germany found that voters trade off policy congruence for liberal democracy and that voters who are less opposed to authoritarian and populist attitudes are more willing to make this trade-off (Lewandowsky & Jankowski, 2023). Authoritarian populists may also appeal to voters' (ethno-)nationalist sentiments (Bonikowski, 2017; Norris & Inglehart, 2019).

3.3 Basic human values

Political preferences—particularly support for authoritarian populist regimes—are not only influenced by issue positions and political attitudes and ideologies but also more generic human values. Basic human values are defined as “desirable transsituational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity” (Schwartz, 1994, p. 21) and have been shown to influence decision making in politics (Baro, 2022; Piurko et al., 2011). In his seminal work, Schwartz discerned 10 basic human values that can be organized into four higher-level values (Schwartz, 1992): self-enhancement,

self-transcendence, openness to change, and conservation. The former and latter pairs represent two bipolar dimensions.

Human values have been shown to influence left-right political preferences and voting behavior in Europe (Piuorko et al., 2011). Furthermore, Baro (2022) analyzed whether higher-level values affect support for populism and whether this effect holds, irrespective of left-right ideology. Based on European Social Survey (ESS) data, she found that voting for populist parties was associated with lower self-transcendent values and higher conservation values across left-right ideologies.

Most contributions on how political beliefs and values affect support for authoritarian populist (and similar) regimes tend to focus on one or a few potential factors, which complicates the comparison of their effects. Indeed, research on the relative importance of economics-based explanations and mechanisms related to political beliefs and values is virtually absent.

Placing the discussed theories and mechanisms in the broader debate about the core drivers behind voters' political behavior, egotropic voting stems from the rational voter hypothesis, which postulates that voters, who act as rational utility maximizers, cast their ballots based on their well-understood self-interests (Downs, 1957). By contrast, the (sociotropic) economic voting and performance voting theories assume that voters are motivated by altruistic reasons, as suggested by the altruistic or ethical voter hypothesis (Goodin & Roberts, 1975; Margolis, 1984). Finally, factors related to ideology and basic values correspond with the expressive voter hypothesis (Fiorina, 1976), which stipulates that voters do not vote to achieve a particular outcome but rather to express their opinions.

4 The Hungarian case

The present empirical analysis focuses on Hungary, which may be considered an exemplary case of an authoritarian populist regime. After the withdrawal of Soviet troops from Warsaw Pact countries in the early 1990s, Hungary quickly adopted a parliamentary democratic system and free market institutions. Over the following two decades or so, Hungary seemed to converge towards a Western-style liberal democratic model at a pace that defied even relatively optimistic expectations (Merkel, 2010). Although it would be an overstatement to claim that the country's illiberal turn in 2010, in which both structural factors (Acemoglu & Robinson, 2019) and critical events such as the 2008 financial crisis and a leaked recording of the former socialist prime minister (in which he admitted lying to the public) are likely to have played a significant role, was completely unexpected, its pace was nonetheless striking.

The systematic dismantling of democratic institutions from 2010 is well-documented (Bogaards, 2018; Kornai, 2015; Bánkuti et al., 2012; Krekó & Enyedi, 2018; Scheiring, 2020) and largely conforms to typical steps in recent episodes of democratic decline, as described in Sect. 2. After taking power and securing a constitutional majority in 2010, Orbán's government quickly began to implement a self-proclaimed "illiberal" model. The system of checks and balances and the rule of law were gradually dismantled, and electoral rules were altered in several steps to favor the incumbent coalition. Most critical media outlets were taken over or silenced, and the civil sector was also targeted.

The regime is characterized by high political corruption (Fazekas & King, 2019) and significant centralization in various domains of the administrative structure (Hajnal & Boda,

2021; Hajnal & Hajnal, 2024). In line with populist ideology, the government’s rhetoric systematically distinguishes between the “good” people of Hungary and its enemies (e.g., the opposition, liberals, homeless people, LGBTQ people, and refugees) to fuel severe partisan polarization (Vegetti, 2019). So far, despite external pressures and crises, the regime has shown no signs of crumbling, as the coalition led by Orbán secured its fourth consecutive victory in 2022.

Figure 1 shows trendlines for the Liberal Democracy Index (Varieties of Democracy Institute) in Hungary, along with those of selected countries and regions. Hungary’s liberal democracy score and those of other Central and Eastern European (CEE) countries skyrocketed after the collapse of the Soviet Union and remained at a high level over the next two decades, when it started to rapidly decline. While a slower downward trend can also be observed in other CEE countries and, to a lesser extent, in Western Europe and North America and Latin America and the Caribbean, the pace and extent of the decline experienced in Hungary are unparalleled (the only country that suffered a similar decline was Turkey).

A few studies have analyzed the factors that affect vote choice in Hungary. Prior to the “illiberal turn” in 2010, two studies found support for classical economic voting (i.e., voters punish the government for bad times and reward it for good times; Stegmaier & Lewis-Beck, 2009, 2011). A more recent analysis that focuses on the post-2010 era also identified economic satisfaction as the most important driver of political preferences (Scoggins, 2022). With regard to egotropic voting, performance voting, or the effects of basic human values on political preferences, evidence from Hungary is virtually absent.

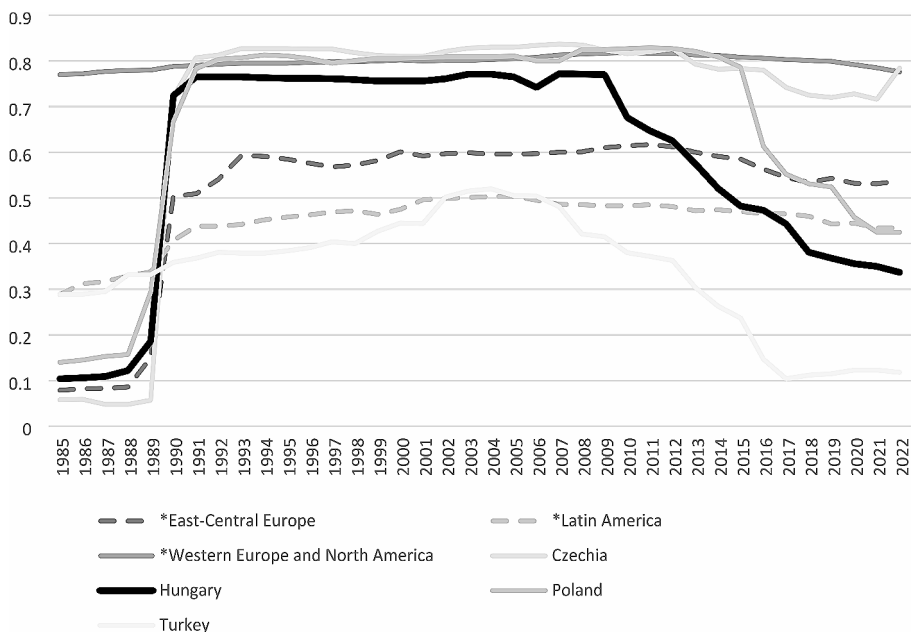


Fig. 1 Liberal democracy scores of selected countries and regions (1985–2022). Source: Varieties of democracy institute

5 Data, hypotheses, and methods

The current empirical analysis relies on the ESS database. The survey is conducted every second year in all European Union member states and collects data on various topics from a representative sample of approximately 2,000 respondents per round and country. Based on my database of personal income tax (PIT) rules in Hungary, respondents' individual PIT rates were calculated and added to the database (details can be found in [Appendix I](#)). Six ESS rounds (Rounds 5 to 10) between 2010 (the beginning of the democratic decline in Hungary) and 2020 (the last available wave at the time of manuscript completion) were used for the study.

5.1 Hypotheses and operationalization

The reviewed theories and mechanisms led to the following testable hypotheses in the context of Hungary between 2010 and 2020. Firstly, as previously noted, a large-scale PIT reform introduced in Hungary between 2010 and 2013 created an opportunity for a natural experiment to test the egotropic economic voting theory. The reform significantly affected the majority of taxpayers to extensively varying degrees. The new system replaced a complex multi-rate system (with tax credits) with a single-rate (“flat”) system that featured a relatively generous family tax allowance scheme. Generally, high-income taxpayers with many children were the main winners in the new system, whereas low-income earners with one or no children had to pay more than before (see details in [Appendix II](#) and [Krekó et al., 2023](#)). In line with the egotropic economic voting theory and the taxpayer retribution theory, this led to the following hypotheses:

H1a: Changes in individual PIT rates influenced support for the government.

H1b: Increases in individual PIT rates negatively influenced support for the government.

The tax reform's effects on individual taxpayers and families (i.e., the change in the overall PIT rate relative to previous years) depended on income, the number of children in the household, and the number of earners in the household. To test these hypotheses, I calculated the change in the PIT rate relative to the previous year and to two years before. To assess the taxpayer retribution hypothesis, PIT increase and PIT decrease variables (see [Table 1](#)) were also computed. The details of the calculations are described in [Appendix I](#), whereas descriptive statistics for the calculated variables are provided in [Appendix III](#).

Still within the realm of economic voting, the sociotropic economic voting theory was operationalized through a survey question that captured the perceived state of the economy, leading to the following hypothesis:

H2: Perceptions of the general state of the economy positively influence support for the government.

Furthermore, the positional voting theory was operationalized through a question about the preferred level of redistribution. In addition to the implementation of a single-rate tax system, prominent Fidesz politicians, including Orbán, actively embraced a “work-based society” and strongly criticized the Western welfare state model and guaranteed allowances. As a result, the effect was expected to be negative:

H3: Preference for redistribution negatively influences support for the government.

Next, performance voting theory was operationalized through two questions on the perceived state of healthcare and education:

Table 1 Description of the variables

Variable	Description/question in ESS	Re- lated hyp.
Economic voting		
<i>APIT(t-1)</i>	Tax change relative to 1 and 2 years before the reference year (negatives indicate tax cut) (Own calculations, see Appendix 1)	H1a/b
<i>APIT(t-2)</i>		
<i>PITincr(t-1)</i>	Tax increase relative to 1 and 2 years before the reference year (0 if no change occurred, or the tax rate decreased) (Own calculations, see Annex)	H1a/b
<i>PITincr(t-2)</i>		
<i>PITdecr(t-1)</i>	Tax cut relative to 1 and 2 years before the reference year (0 if no change occurred, or the tax rate increased) (Own calculations, see Annex)	H1a/b
<i>PITdecr(t-2)</i>		
<i>Satisf. with the economy</i>	“On the whole how satisfied are you with the present state of the economy in [country]?” (0 to 10 scale)	H2
<i>Preference of redistribution</i> ⁴	“Please say to what extent you agree or disagree with each of the following statement: The government should take measures to reduce differences in income levels” (1-agree strongly / 5 disagree strongly) (rescaled)	H3
Performance voting		
<i>Satisf. with educ.</i>	“What do you think overall about the state of education in [country] nowadays?” (0 to 10 scale)	H4a
<i>Satisf. with health serv.</i>	“What you think overall about the state of health services in [country] nowadays?” (0 to 10 scale)	H4b
Political beliefs (policy congruence and ideology)		
<i>Support for LGBTQ freedom</i>	“Please say to what extent you agree or disagree with each of the following statements. Gay men and lesbians should be free to live their own life as they wish” (1-agree strongly / 5 disagree strongly) (rescaled)	H5a
<i>Preference of redistribution</i>	“Please say to what extent you agree or disagree with each of the following statement: The government should take measures to reduce differences in income levels” (1-agree strongly / 5 disagree strongly) (rescaled)	H5b
<i>Left-right placement</i>	“In politics people sometimes talk of ‘left’ and ‘right’. Using this card, where would you place yourself on this scale, where 0 means the left and 10 means the right?” (0-left / 10-right)	H6
Human values		
<i>Self-enhancement</i>	Averages of the respective Schwartz-value questions.	H7a
<i>Self-transcendence</i>		H7b
<i>Conversation</i>		H7c
<i>Openness</i>		H7d
Outcome variables		
<i>Satisf. with the economy</i>	“On the whole how satisfied are you with the present state of the economy in [country]?” (0 to 10 scale)	
<i>Satisf. with the national government</i>	“Now thinking about the [country] government, how satisfied are you with the way it is doing its job?” (0 to 10 scale)	
<i>Partisanship</i>	A categorical variable that discerns non-partisans, supporters of Fidesz/ KDNP, and of any other parties.	

Source: ESS database

⁴ May be viewed both as a measure of positional voting or an issue position.

H4a: The perceived state of the healthcare system positively influences support for the government.

H4b: The perceived state of the education system positively influences support for the government.

Moreover, the effects of policy congruence (i.e., congruence between voters' preferred policies and policies proposed by candidates) were assessed through two questions related to redistribution (which were also used to assess positional voting) and LGBTQ freedom. Firstly, as noted above, the government took a clear stance in favor of low redistribution. Secondly, Fidesz embraced conservative family values and used an increasingly hostile rhetoric against the LGBTQ community; this culminated in Act LXXIX of 2021, which relates pedophilia and homosexuality and bans "pro-LGBTQ propaganda." While these specific issues covered only a fraction of voters' overall issue positions, their significance in the government's communication made them suitable for assessing the influence of policy congruence on political preferences. This led to the following two hypotheses:

H5a: Preference for redistribution negatively influences support for the government.¹

H5b: Preference for LGBTQ freedom negatively influences support for the government.

In addition, the effects of ideology on support for the government were tested based on a question about left-right self-placement. Given the government's clear self-positioning on the political right, the effect was expected to be positive:

H6: Preference for the political right positively influences support for the government.

Finally, the effects of human values on political preferences were assessed based on Schwartz's (1992) four higher-level values, which were calculated as the (rescaled) mean of the constituent lower-level values. To ascertain the internal consistency of the calculated indices, Cronbach's alpha statistics were calculated. The relatively high Cronbach's alpha values² indicated that the constituent questions measured one underlying concept.

The government's rhetoric and actions provided clear indications regarding potential associations between human values and support for the government. On the one hand, its rejection of the liberal welfare state model, targeting of vulnerable groups (e.g., the homeless, refugees, and the LGBTQ community) through legal measures and rhetoric, and promotion of a "work-based society" and a single-rate tax system suggest that individuals with higher self-enhancement values and lower self-transcendence values are more likely to hold a favorable opinion of the government. On the other hand, the government's conservative stance, which embraces traditional Christian and family-centered values while vividly opposing liberalism, suggests that higher conservation values and lower openness values are associated with greater support for the government. Similarly, previous research has shown that lower self-transcendence and higher conservation values are linked to increased support for populism in Europe (Baro, 2022). This led to the following hypotheses:

H7a: Self-enhancement values positively influence support for the government.

H7b: Self-transcendence values negatively influence support for the government.

H7c: Conservation values positively influence support for the government.

H7d: Openness values negatively influence support for the government.

The outcome—support for the government—was operationalized through a question about how satisfied the respondent was with the national government (on a scale of 0 to 10). Additionally, in the case of H1a and H1, satisfaction with the state of the economy and partisan preferences were also used as outcome variables. Table 1 presents the ESS questions used to operationalize the variables and indicates the hypotheses and theories that they were related to.

¹ Identical to H3.

² Self-enhancement: 0,734; Self-transcendence: 0,756; Conservation: 0,691; Openness: 0,714.

5.2 Methods

To test the hypotheses, two sets of models were constructed. Firstly, the egotropic voting hypothesis and the taxpayer retribution hypothesis (H1a and H1b) were assessed using a separate set of models (Model 1a to 3d) with different outcome variables and estimation methods (simple regression and binary logistic), identical controls (year dummies and a three-item income scale), and explanatory variables that captured changes in respondents' PIT rates. In these models, all of the other explanatory variables were excluded due to the substantial challenge posed by endogeneity (reverse causation). By contrast, it could be assumed that tax rates and their changes were not influenced by any of the explanatory or outcome variables. Therefore, while the inclusion of further explanatory variables may have increased significance levels and model fit statistics, they may also lead to biased estimates, which constitutes a more serious threat to internal validity. In these models, I only included the ESS waves of 2010, 2012, 2014, and 2016, as subsequent changes in the tax system affected only a fraction of taxpayers (and to a lesser extent), which would have led to too many "zeros" in the sample.

A second set of models (Models 4 to 9) were used to address the remaining hypotheses (H2 to H7). In the case of these mechanisms, endogeneity posed a substantive threat, as not only do voters' perceptions of the economy and government's performance, political beliefs, and human values affect political preferences, but the reverse is also true, particularly with regard to perceptions (Evans & Pickup, 2010; Burlacu & Tóka, 2014), as partisanship creates a cognitive bias (Van Bavel & Pereira, 2018). Put simply, support for the government affects partisanship, which largely influences media preferences and choices regarding friends and social interactions, which decisions, in turn, affect the hypothesized drivers of support for the government (i.e., perceptions, political beliefs, and human values).

In light of these challenges, I applied two different solutions. Firstly, I controlled for partisan preferences (Model 8; Baro, 2022; Duch & Stevenson, 2008; Evans & Pickup, 2010; Stiers, 2022). Partisanship has a bidirectional causal relationship with both the explanatory and the outcome variables (i.e., it is both a mechanism variable and a reverse causation variable), therefore the regression coefficients estimated using partisanship as a control variable are lower estimates of the actual effect. Secondly, in Model 9, I estimated the coefficients of the hypothesized factors on the subsample of non-partisans (Burlacu & Tóka, 2014). In the case of non-partisans, the explanatory variables were not endogenous (or only endogenous to a very limited extent), as these respondents were less likely to be affected by the aforementioned reverse causation mechanism.

In the case of both model groups (Models 1 to 3 and Models 4 to 9), the sample sizes were harmonized by omitting all observations in which any of the variables used in the respective model groups had missing values to ensure comparability (this did not apply to Model 9, in which only non-partisans were included).

6 Empirical analysis

6.1 Egotropic voting

The coefficient estimates of the models that focused on H1a and H1b are shown in Table 2. Changes in individual tax rates relative to the previous two years were not found to significantly affect either satisfaction with the economy (Models 1a–1d), the national government (Models 2a–2d), or partisanship (Models 3a–3d). The low adjusted R^2 values also indicated that the explanatory variables in Models 1 and 2 accounted for a very limited amount of the variation in the outcome variable. Consequently, the results supported neither the egotropic voting hypothesis (H1a) nor the taxpayer retribution hypothesis (H1b).

6.2 Sociotropic and performance voting, political beliefs, and values

A total of six models were estimated to test H2 to H7 (see Table 3). In all six models, year dummies, income and education (using a three-item scale for both), age (using a 10-year interval categorical variable), and gender were included as controls. In the first three models, different sets of variables were included: economic and performance voting variables in Model 4, political beliefs (policy congruence and ideology) in Model 5, and human values in Model 6. In these models, all but two coefficient estimates (i.e., *openness* and *support for LGBTQ freedom*) were found to be significant, and their signs were in line with the hypotheses. The estimates for Model 6 indicated that higher levels of self-enhancement and conservation values were associated with higher support for the government. By contrast, higher self-transcendence values were associated with lower support for the government. In Model 7, all of the aforementioned sets of variables were included, which, as expected, resulted in a loss of significance in the case of a few variables (i.e., *preference for redistribution* and *self-enhancement*) and lower coefficient estimates in the case of all variables.

As explained above, however, the associations estimated in Models 4 to 7 cannot be interpreted as causal, as the explanatory variables are likely to be endogenous. Thus, Model 8 employed partisanship as a control, while Model 9 was estimated based on a subsample of non-partisans. Interestingly, endogeneity controls only had a limited effect on the results. *Satisfaction with the economy* and *preference for redistribution* (the latter with a negative sign) remained significant, which provided support for the sociotropic economic voting (H2) and positional voting (H3) hypotheses. Similarly, the significant and positive coefficient estimates for perceptions of the education and healthcare systems affirmed H4a and H4b. While controlling for endogeneity slightly decreased coefficient estimates of these three variables, they still remained significant.

The policy congruence hypotheses (H5a and H5b) were partially confirmed by the results: as mentioned above, *preference for redistribution* had a small but significant negative coefficient in Models 8 and 9, which indicates that voters with a lower preference for redistribution (and thus a greater alignment with the government's position) tend to have a more favorable opinion of the government (H5a). By contrast, *support for LGBTQ freedom* had a negative but statistically insignificant effect on the outcome; therefore, H5b was not supported. Moreover, the coefficient estimate for *left-right placement* decreased after controlling for endogeneity but remained significant, which provided support for the ideological voting hypothesis (H6). As for higher-level human values, *self-enhancement*

Table 2 Parameter estimates for egotropic voting

	Satisfaction with the economy			Satisfaction with the national government			Sympathy with Fidesz (binary logistic)					
	(1a)	(1b)	(1c)	(1d)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(3c)	(3d)
$\Delta PII(t-1)$	0.448 (1.28)				0.488 (1.49)				0.751 (1.36)			
$PIIincr(t-1)$		-0.405 (2.87)				-0.849 (3.34)				-1.483 (3.54)		
$PIIdecr(t-1)$		0.732 (1.54)				0.934 (1.79)				1.338 (1.62)		
$\Delta PII(t-2)$			-0.729 (1.13)				-0.794 (1.32)				0.327 (1.22)	
$PIIincr(t-2)$				-0.231 (3.15)				1.63 (3.66)				4.724 (3.45)
$PIIdecr(t-2)$				-0.863 (1.38)				-1.443 (1.61)				-0.766 (1.45)
Controls	Year, income (3-item scale)											
Years	2010–2016											
Observations	2714											
Adj. R^2	0.078	0.078	0.078	0.078	0.040	0.039	0.040	0.040	2879.20	2880.80	2879.50	2879.70
AIC												

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; std. error in brackets

Source: author's calculations

and *openness* only exhibited significant coefficients in Models 8 and 9, respectively, but *self-transcendence* (with a negative sign) and *conservation* (with a positive sign) remained significant in both Models 8 and 9, which lent support for H7b and H7c. Notably, the coefficient estimates' magnitudes and significance levels for Models 8 and 9 are fairly similar, which underscores the robustness of the findings.

The adjusted R^2 values suggested that the first group of variables (Model 4: *satisfaction with the economy, education and healthcare*) explained the largest fraction of the variance in the outcome by far; adding all of the other explanatory variables in Model 8 only increased the adjusted R^2 by 0.087 relative to Model 4. To grasp the relative magnitude of the effect sizes, Fig. 2 shows the coefficient estimates for Model 8, along with the scales of the variables.³ *Satisfaction with the economy* (coefficient: 0.58; measured on a scale of 0 to 10) had the strongest effect on the outcome. The effects of *self-transcendence* and *conservation* (coefficients: -0.15 and 12, respectively) were weaker, but they were still much stronger than that of the remaining variables since they were measured on a narrower scale of 1 to 6.

7 Discussion

The results provided partial support for the economic voting theory. In line with previous findings from democratic (Lewis-Beck & Nadeau, 2011; Lewis-Beck & Stegmaier, 2019) and autocratic countries (Guriev & Treisman, 2020), the results supported the sociotropic economic voting hypothesis. The strong effect of perceived economic performance on political preferences can also explain why authoritarian populists' rhetoric typically emphasizes economic performance (Evans, 2024; Guriev & Treisman, 2019). The results also corroborated positional voting theory, as a higher preference for redistribution was found to decrease support for the government. By contrast, the significant changes in individual tax rates that result from a large-scale tax reform did not seem to affect political preferences, as predicted by the egotropic voting hypothesis and the taxpayer retribution hypothesis.

The results supported the performance voting theory – that is, support for the government is affected by its perceived performance in different policy areas. Interestingly, however, perceptions do not seem to be largely endogenous, as the coefficient estimates decreased only marginally when partisanship was included as a control variable. This implies that a large share of the variation in voters' evaluations of the government's performance is independent of their partisan identity. In a broader sense, these results indicate that the economic and performance voting theories, which originate from and are mainly applied in (liberal) democratic contexts, offer viable explanations for understanding the support garnered by authoritarian populist regimes.

Political beliefs (policy congruence and ideologies) were also found to affect political preferences. Specifically, a preference for redistribution and self-identification with left-leaning ideologies was found to decrease support for the government. The results confirm previous findings (e.g., Baro, 2022; Stubager, 2013) and indicate that political outcomes are also influenced by values: conservation and self-transcendence increase and decrease support for the government, respectively.

³ As the variables are measured at different scales, the scales must be taken into account when comparing the coefficients.

Table 3 Parameter estimates for sociotropic and performance voting, political beliefs, and values voting)

	Approval of national government					
	(4)	(5)	(6)	(7)	(8)	(9)
<i>Satisf. with economy</i>	0.725** (0.013)			0.635** (0.013)	0.578** (0.012)	0.630** (0.017)
<i>Satisf. with education</i>	0.166** (0.014)			0.154** (0.013)	0.138** (0.012)	0.125** (0.016)
<i>Satisf. with healthcare</i>	0.103** (0.013)			0.085** (0.013)	0.077** (0.012)	0.084** (0.016)
<i>Preference for redistribution</i>		-0.459** (0.039)		-0.050 (0.029)	-0.070* (0.027)	-0.088* (0.036)
<i>Support for LGBTQ freedom</i>		-0.018 (0.027)		-0.006 (0.019)	-0.005 (0.018)	-0.022 (0.025)
<i>Left-right placement</i>		0.513** (0.014)		0.254** (0.010)	0.147** (0.011)	0.176** (0.018)
<i>Self-enhancement</i>			0.222** (0.050)	0.051 (0.031)	0.060* (0.029)	0.018 (0.042)
<i>Self-transcendence</i>			-0.622** (0.071)	-0.110* (0.045)	-0.148** (0.042)	-0.243** (0.058)
<i>Conservation</i>			0.555** (0.070)	0.154** (0.044)	0.125* (0.041)	0.133* (0.057)
<i>Openness</i>			0.010 (0.064)	-0.018 (0.040)	-0.009 (0.037)	0.105* (0.051)
<i>Partisanship</i>						
<i>Nonpartisan (ref)</i>					—	
<i>Other</i>					-0.438** (0.057)	
<i>Fidesz</i>					1.298** (0.059)	
Endogeneity addressed	No	No	No	No	Yes	Yes
Controls	<i>Year, income (3-item scale), education (3-item scale), age (categorical var. for 10-year intervals)</i>					
Years covered	2010–2020					
Observations	4918	4918	4918	4918	4918	2596
Adj. R^2	0.601	0.289	0.071	0.647	0.688	0.619

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; std. error in brackets

Source: author's calculations

Placing the study within the broader debate on the core motives that drive voters, the results confirm that political preferences are not primarily influenced by economic self-interest, as the (classical) rational voter hypothesis suggests (Downs, 1957). Rather, the analysis lends support for the altruistic voter hypothesis (Goodin & Roberts, 1975; Margolis, 1984), as general perceptions of the state of the economy and the government's performance were found to have the most explanatory power. The results also support the expressive voter hypothesis (Fiorina, 1976): general ideologies and basic human values influence voters' political preferences. The latter two considerations offer a solution for the paradox of voting (Downs, 1957). A seeming contradiction lies at the heart of this paradox: due to the low probability that an individual vote will alter the outcome of an election, the associated costs of voting often surpass its anticipated benefits. Thus, altruistic and expressive motives explain why voters may still decide to cast their ballots.

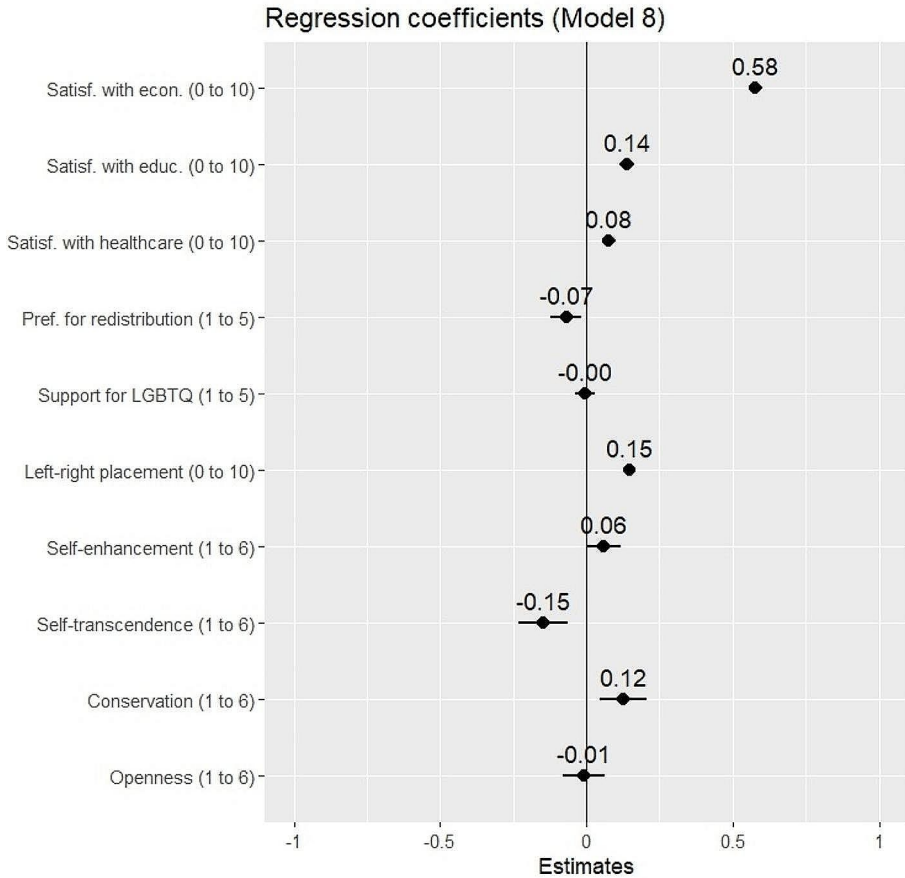


Fig. 2 Coefficient estimates with 95% confidence intervals for Model 8 (scales of the variables on the left side). Source: author's calculations

A growing body of empirical evidence suggests that, in authoritarian populist (or similar hybrid) regimes, incumbents remain popular by controlling the media (Guriev & Treisman, 2019) and polarizing citizens (McCoy et al., 2018). Since partisanship serves as a cue that drives both media consumption and polarization, it may influence not only ideologies but also perceptions of the government's performance and the state of the economy, as well as basic human values (Baro, 2022; Evans & Pickup, 2010; Iyengar et al., 2019). While partisanship undoubtedly affects the above factors, the present analysis also shows that the latter influence political outcomes, independent of partisanship.

These findings also have important implications for the fate of democracy in Hungary and other authoritarian populist countries. Political commentators and citizens who lean towards the opposition tend to be rather skeptical about potential opposition strategies for appealing to voters and claim that the overwhelming dominance of pro-government media outlets and deepening partisan divisions make many (typically pro-government) voters unreachable. While there is considerable truth in this assertion, the findings show that partisan identities are far from being the only cues that influence voters' political preferences. Therefore,

appealing to voters by proposing substantive arguments (rather than simply emphasizing partisan identities) may still be an effective strategy. In particular, voters seem to be most likely to consider arguments about the economy and more generic moral aspects of policies.

8 Summary and limitations

Authoritarian populism is spreading around the globe. In authoritarian populist regimes, elections are still meaningful despite not being free or fair; therefore, incumbents must and do seek to remain popular. The aim of this article is to examine how they do so by identifying the drivers of support for Orbán's government in Hungary. Hungary stands out as one of the most rapidly de-democratizing countries worldwide (Hellmeier et al., 2021), and a context in which the government continues to enjoy relatively broad popular support. The present empirical analysis was based on six ESS waves that took place between 2010 and 2020 and my calculations of respondents' PIT rates.

This approach enabled the examination of factors that influence support for authoritarian populism at the individual level, thereby complementing extant literature that predominantly focuses on the country level (Lavrič & Bieber, 2021). Additionally, most previous analyses that focused on the individual support for authoritarian populist (and similar) regimes considered only one or a few factors. By contrast, the present analysis includes a relatively large number of explanatory variables, which enabled an assessment of their relative explanatory power.

The empirical analysis showed that voters' preferences are primarily shaped by their perceptions of the economy. Their perceived performance of the government, issue positions, ideology and two basic human values—self-transcendence and conservation—are also relevant. By contrast, voters' economic situation, as captured by changes in individual PIT rates, did not appear to be associated with the outcome. The applied research design addressed potential endogeneity concerns and enabled a causal interpretation of the results. Similar results were obtained with different model specifications, which underpins the robustness of the findings.

The study has some important limitations. Firstly, due to data limitations, several potential drivers of political preferences could not be tested, such as populist attitudes and ethno-nationalist sentiments. Furthermore, the deterioration of media freedom in Hungary has likely had a substantial effect on voters' political preferences. Future contributions may assess these factors, should suitable data be available. Secondly, focusing on a single case somewhat limits the external validity of the findings. Nonetheless, the validity of the findings extends beyond the borders of Hungary. On the one hand, the results show that many of the individual-level drivers of political preferences that have gained significant empirical support in democratic contexts (particularly those rooted in economic voting theory) are also applicable in less democratic settings. On the other hand, since Hungary is an exemplary case of authoritarian populism and a role model for populists, the results are not only likely to hold among actual authoritarian populist regimes but can also contribute to the understanding of why voters support parties with similar values in more democratic contexts.

Appendix

Calculation of change in PIT rates

The PIT variables used to assess the egotropic voting hypothesis (Models 1 to 3) were calculated as follows.

- i) As the ESS dataset only contained data on families' net income, PIT rates could not be calculated by simply applying the PIT rules to gross incomes. Instead, they had to be indirectly calculated. Firstly, a database was constructed in which, for each combination of (net income intervals of HUF 1,000, or around EUR 3)*(year)*(number of children), a PIT rate was calculated based on PIT regulations (see [Appendix 2](#) for a summary)..
- ii) Secondly, the same characteristics were calculated for ESS respondents:
 - a. Net income: Based on family net income deciles, net incomes were estimated as the average of the two nearest deciles (in the case of the first and the 10th deciles, the $-/+$ 33% of the lowest and highest decile was used). It should be noted that the potential discrepancies between estimated and (unobserved) actual incomes have a very limited effect on estimated tax rates, as the tax rates of very low and high incomes are not sensitive to minor changes. Additionally, until 2012, the number of earners in a household also affected the overall tax rate of households through the tax credit system (as not households but individuals were the main subjects of the PIT rules). Therefore, this was also taken into consideration for those years: estimated net family income was divided by two if the number of earners in a household was two (assuming that the two earners did not have drastically different income levels)..
 - b. Number of children under age 18 (entitled to family allowance): This was calculated based on household composition variables (the number of people living in the respondent's household, their relationship to the respondent, and their age)..
 - c. Year (as indicated in the database)..
- iii) Using the database described in (i) as a lookup table, respondents' PIT rates were assigned to observations in the ESS database, based on the individual characteristics described in (ii)..
- iv) To calculate tax changes, respondents' PIT rates from Years ($t-1$) and ($t-2$) were also calculated based on respondents' data (income, number of children, and number of earners) in the reference year (t) and the tax rules in force in Years ($t-1$) and ($t-2$). This approach was justified based on the following two considerations. Firstly, if a respondent's effective tax rate changed because their situation changed (e.g., a significant change in income, children born, etc.) while the tax rules remained the same, they were unlikely to attribute this change to government policies. Secondly, the individual-level variables that determined the effective tax rate were not likely to drastically change within two years in the majority of cases. The change in the PIT rate between the reference year (t) and Years ($t-1$) and ($t-2$) was calculated based on the following formulas:

$$\Delta PIT(t-1) = PIT_t - PIT_{t-1} \quad (1)$$

$$\Delta PIT(t-2) = PIT_t - PIT_{t-2} \quad (2)$$

- v) PIT rates were not calculated for observations in which the income decile was missing or if the main source of income was not work-related and neither the respondent nor their partner performed a paid job over the last seven days..
- vi) Furthermore, PIT increase and PIT decrease variables were computed relative to Year ($t-1$) (Eqs. 3 and 4) and Year ($t-2$) (Eqs. 5 and 6) as follows:

$$PIT_{incr}(t-1) = \begin{cases} \Delta PIT(t-1), & \text{if } \Delta PIT(t-1) > 0 \\ 0, & \text{if } \Delta PIT(t-1) \leq 0 \end{cases} \quad (3)$$

$$PIT_{decr}(t-1) = \begin{cases} \Delta PIT(t-1), & \text{if } \Delta PIT(t-1) < 0 \\ 0, & \text{if } \Delta PIT(t-1) \geq 0 \end{cases} \quad (4)$$

$$PIT_{incr}(t-2) = \begin{cases} \Delta PIT(t-2), & \text{if } \Delta PIT(t-2) > 0 \\ 0, & \text{if } \Delta PIT(t-2) \leq 0 \end{cases} \quad (5)$$

$$PIT_{decr}(t-2) = \begin{cases} \Delta PIT(t-2), & \text{if } \Delta PIT(t-2) < 0 \\ 0, & \text{if } \Delta PIT(t-2) \geq 0 \end{cases} \quad (6)$$

The Hungarian tax reform

Table 4 The most important aspects of the Hungarian PIT system in selected year

Tax	2007	2011	2013	2017	2021
PIT					
Band limit (EUR, annual)	6,8	-	-	-	-
Lower tax rate, %	18.0	20.3	16.0	15.0	15.0
Top tax rate(s), %	36.0; 40.0	-	-	-	-
Minimum wage tax credits					
Lower threshold (EUR, annual)	8,4	9,857	-	-	-

Table 4 The most important aspects of the Hungarian PIT system in selected year

Tax	2007	2011	2013	2017	2021
Max value (EUR, monthly)	45	43	-	-	-
Phase-out threshold (EUR) (reduced)	11,04	14,194	-	-	-
Family tax allowance (EUR, monthly)					
One dependent - tax base	-	224	208	202	180
One dependent - net	-	36	33	32	27
Two dependants - tax base	-	224	208	323	360
Two dependants - net/dependent	-	36	33	48	54
Three dependants - tax base	-	738	687	665	595
Three dependants, net/dependent	14	118	110	106	89
Can also be deducted from employee ssc contributions	X	X	X	✓	✓
PIT exemption for mothers of four or more children	X	X	X	X	✓
Employees' contributions					
Social security contributions, %	-	-	-	-	45,430
Pension contributions, %	8.5	10	10	10	-
Health insurance contribution, %	7	6	7	7	-
Labour market contribution, %	1.5	1.5	1.5	1.5	-
Total %	17.0	17.5	18.5	18.5	18.5

Source: author's compilation based on national legislation

Descriptive statistics of change in PIT rates

Table 5 Descriptive statistics of the variable $\Delta PIT(t-1)$

Children	Lower income (1st to 3rd deciles)				Middle income (4th to 7th deciles)				Higher income (8th to 10th deciles)			
	Mean	N	Min	Max	Mean	N	Min	Max	Mean	N	Min	Max
None	0.01	376	-0.04	0.07	-0.01	852	-0.11	0.08	-0.01	611	-0.09	0.05
1	0.02	71	-0.04	0.07	0.00	214	-0.11	0.08	-0.02	215	-0.09	0.05
2	-0.02	44	-0.06	0.06	-0.02	131	-0.11	0.04	-0.02	100	-0.09	0.05
3+	-0.06	17	-0.19	-0.02	-0.19	54	-0.24	0.00	-0.16	29	-0.25	-0.05

Notes: 2010 to 2016, $N=2714$

Source: author's calculations, based on ESS data

Table 6 Descriptive statistics of the variable $\Delta PIT(t-2)$

Children	Lower income (1st to 3rd deciles)				Middle income (4th to 7th deciles)				Higher income (8th to 10th deciles)			
	Mean	N	Min	Max	Mean	N	Min	Max	Mean	N	Min	Max
None	0.00	376	-0.04	0.17	-0.02	852	-0.11	0.07	-0.03	611	-0.11	0.03
1	0.00	71	-0.04	0.17	-0.01	214	-0.11	0.07	-0.02	215	-0.11	0.03
2	-0.04	44	-0.10	0.06	-0.03	131	-0.11	0.09	-0.05	100	-0.13	0.08
3+	-0.02	17	-0.18	0.01	-0.10	54	-0.24	0.17	-0.08	29	-0.25	0.01

Notes: 2010 to 2016, $N=2714$

Source: author's calculations, based on ESS data

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Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations

Competing interest The author has no competing interests to declare that are relevant to the content of this article.

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