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TAXES IN THE TIME OF REVOLUTION

An Experimental Test of the Rentier State during Algeria's Hirak

By ROBERT KUBINEC^{a*} and HELEN V. MILNER^b

^a Department of Political Science, New York University Abu Dhabi,
Abu Dhabi, United Arab Emirates

^b School of Public and International Affairs and Niehaus Center for Globalization
and Governance, Princeton University, Princeton, New Jersey

* Corresponding author. Email: rmk7@nyu.edu

ABSTRACT

This article examines the rentier thesis that a government's control over oil resources should help it to resist pressures for democratization. The authors' online survey experiment, implemented during a nationwide mobilization for regime change in Algeria known as the Hirak, used interactive experimental treatments to provide information about the Algerian government's subsidies for fuel resources and low value-added taxes. Based on a sample of 9,721 Algerians, the authors find that when Algerians learn about their country's relatively high level of fuel subsidies and low level of taxes, their assessments of the government's performance improve. However, the treatment has null effects for outcomes involving demands for representation, such as intentions to join protest movements. An analysis of treatment heterogeneity in terms of wealth shows that the wealthy became much more supportive of the regime in response to the treatment while in some cases the poor became much less so. This treatment heterogeneity appears to be related to divergent views among the wealthy and the poor concerning the goals of the protest movement, with the wealthy favoring institutional reforms while the poor prioritized redistributive justice.

THE rentier theory—a long-standing conjecture of the determinants of regime type in comparative political science—argues that a state's control over natural resources is likely to promote an authoritarian form of government.¹ Since the 1970s, cross-national studies have revealed the theory—which originated in the analysis of oil-rich states in the Middle East²—to be a compelling factor in supporting authoritarianism.³ In this article, we experimentally test one of the core components of the rentier state theory: to what extent do citizens limit

¹ Ross 2001; Herb 2005; Beblawi and Luciani 1987.

² Crystal 1990; Beblawi and Luciani 1987; Ayubi 1995.

³ Ross 2015.

their demands for representative government in response to changes in increases in receipts of oil-funded benefits from their nondemocratic government?⁴

This theory involves the taxation-representation trade-off.⁵ A state's control over oil resources provides it with a source of revenue that does not require regular tax collection or compliance, reducing citizens' leverage in bargaining with the ruler over control of the resources. Our intention is not to test whether oil rents and taxes are actually substitutes—we assume that they are—but rather whether the alleged reduction in taxes due to increased oil revenues empirically reduces demands for representative, and ultimately democratic, government.

Testing whether this trade-off between oil rents and democratic aspirations exists is difficult because episodes of regime change are rare. To provide useful data, we examined a recent wave of popular mobilization in Algeria during 2019 known as the Hirak. This national protest movement endured for months up until the outbreak of the COVID-19 pandemic in 2020, and successfully forced the long-standing president, Abdelaziz Bouteflika, out of office. We fielded an online survey for several months during the early period of the protest movement from April to July 2019, recruiting a diverse sample of 9,721 Algerians. In our survey, we embedded an interactive experiment that asked respondents for the amount they had spent on fuel subsidies and goods covered by the value-added tax (VAT). To provide a plausible counterfactual per the rentier theory of an oil-free Algeria, we then showed them the increased amount they would spend on these items if they lived in Tunisia, a neighboring country that at the time of the Hirak had democratic institutions but did not have extensive fuel resources or subsidies. We supplemented these individualized treatments with a general informational message showing that the Algerian state's reliance on oil revenues has increased in recent years.

Our results show that the treatments improved respondents' perceptions of the government's performance, measured as its ability to combat corruption, provide public goods, implement reforms, and guard stability. However, when we examine outcomes involving demands for accountability, such as intentions to protest, we find no clear differences between treatment and control groups, suggesting that the rentier

⁴ Paler 2013; de la Cuesta et al. 2019.

⁵ Levi 1989; Tilly 1992; Prichard 2015.

state's resources are not able to affect these crucial variables. When we examine treatment heterogeneity in terms of wealth, which was a core part of the interactive treatment, we find that wealthy respondents were much less likely to report a desire to join the protest movement upon receiving the treatment, while the opposite held for poor respondents. Furthermore, the overall positive effects of the treatment on attitudes toward government performance are likewise concentrated among wealthy respondents.

For these reasons, we believe that our results show that declining support for the rentier state among the wealthy is particularly problematic for rentier regimes. However, as we illustrate with our survey data, the wealthy who supported the protest movement believed the movement would result in institutional changes but not in changes to the level of redistribution. The effectiveness of our treatment among the wealthy in terms of dampening support for regime change suggests that these groups were prone to rethink their support for the HIRAK once they realized the potential implications of revolutionary change on domestic political economy.

BACKGROUND

The rentier state is a theory that has profoundly influenced political science research since Hossein Mahdavy, Hazem Beblawi and Giacomo Luciani, Terry Lynn Karl, and Lisa Anderson explored the effects of oil resources on the nature of political institutions in the Middle East and Latin America.⁶ Since that time, a growing literature has documented strong associations between the presence of oil resources and authoritarian forms of government.⁷ However, narrowing the full range of theories to a precise set of causal factors is difficult.⁸ Scholarship has shown that the effect of oil on regime type may be conditional on a range of variables, such as the timing of regime change, the degree of industrialization, and the presence of income inequality.⁹

Although we acknowledge the many strands of the theory, in this article we focus primarily on the contention that oil revenues may reduce demand for representation by lessening citizens' tax burden in exchange for public and private goods. This element can be understood as the

⁶ Mahdavy 1970; Beblawi and Luciani 1987; Karl 1997; Anderson 1987.

⁷ Ross 2001; Ross 2012; Ross 2015; Andersen and Ross 2014.

⁸ Smith and Waldner 2021.

⁹ On regime change, see Houle 2018. For degree of industrialization, see Brooks and Kurtz 2016. And for income inequality, see Dunning 2008.

demand side of rentier theory: to what extent rentier policies prevent contention from happening by reducing representative demands. Other core components of the rentier thesis exist that can be understood as supply side issues of state power, such as oil increasing a state's repressive capacity,¹⁰ which can prevent regime change from occurring even if the majority of the population favors it. Our theoretical test primarily applies to the demand side rather than to the supply side articulation, given that our treatment affects individuals directly rather than by first changing institutions. For that reason, our research is relevant to broader questions of governance involving bargaining with citizens for government revenue in exchange for public goods.¹¹

DEMAND-SIDE THEORIES OF THE RENTIER STATE

In general, the taxation-representation trade-off can be seen as a necessary, but not sufficient, condition for democratization. If a state does not require citizens to contribute to its coffers, while still maintaining an acceptable level of public goods, then it may prevent redistributive conflicts because the cost of collective action to oppose the state is far greater than the benefits of the status quo. This theory has two components: states provide public goods in a way that improves citizens' perceptions of the state, or what we call *governance outcomes* in this article; and citizens decide whether to pressure the state to increase representativeness, which we call *accountability outcomes*. These two sides of the taxation-representation trade-off are important because they can each vary independently: a causal factor could change the level of public goods while leaving accountability demands constant and vice versa.

Simplistically, we expect a higher level of public goods to reduce accountability pressures, but only if citizens' perceptions of governance also improve. Conversely, a direct reading of the rentier thesis suggests that improved perceptions of governance would reduce accountability pressures, but it could well be that citizens value the quality of their state institutions while still desiring them to change to become more representative. People can make their own choices regardless of the theory's postulates, which is also what makes it falsifiable.

This theoretical approach has been used to explain a wide array of variance in the quality and type of state institutions. Early modern European states' demands for revenue and consequent increases in taxation are strongly linked both to increases in state infrastructural power and

¹⁰ Ross 2001; Bellin 2004; Brownlee, Masoud, and Reynolds 2015.

¹¹ Bates and Lien 1985.

demands for more representation in the government.¹² Recent studies show that this historical pattern also tends to hold among contemporary states, as states that collect fewer taxes are also less democratic.¹³ This feature of contemporary state development may be explained by the widespread availability of sovereign finance that encouraged state expansion without the need for growing the tax base.¹⁴ As such, the taxation mechanism remains one of the best explanations for how a state's reliance on oil revenues could lead to authoritarian government by reducing citizens' claims on the state.¹⁵

It is perhaps unsurprising as a result that rentier state theory has its critics who allege that the theory is based on flawed cross-sectional comparisons.¹⁶ The theory seems to best explain resource-dependent countries in the Middle East, which also happens to be the most authoritarian region in the world.¹⁷ Despite the durability of authoritarian regimes in the region, that authoritarianism is caused by states' discovery of oil resources does not necessarily follow. Rather, early factors in state development could have predisposed Arab governments to form more authoritarian governments than other governments in the world. The subsequent exploitation of oil resources may have served to lengthen a given leader's tenure but may not have affected the leader's propensity to use authoritarian means to retain power, as plausibly occurred in the Arabian Gulf in the first half of the twentieth century.¹⁸ Even if oil resources tend to reduce citizens' claims on the state, survey evidence shows that Gulf citizens are prone to unhappiness with the rentier state if they see it as corrupt or inequalitarian.¹⁹

Our main theoretical contribution in this article is to explore the conditional preferences that class groups have toward the rentier state. Existing theory tends to view citizens' preferences as largely derived from the level of benefits that they receive, but during times of contention, the definition of what constitutes largesse is an issue that citizens must decide. Furthermore, even if the level of benefits provided is large in absolute terms, unhappy citizens may still be upset based on comparisons that they rely on to determine whether their share of the pie is reasonable. As we show in this article, people with varying wealth endowments

¹² Weiss and Hobson 1995; Dincecco 2009; Levi 1989; Bates and Lien 1985.

¹³ Slater, Smith, and Nair 2014.

¹⁴ Migdal 1988; Queralt 2019.

¹⁵ Jones 2017.

¹⁶ Waldner, Peterson, and Shoup 2015; Herb 2005.

¹⁷ Jamal and Tessler 2008.

¹⁸ Waldner and Smith 2021.

¹⁹ Mitchell and Gengler 2019.

are likely to judge the performance of the rentier state differently, and these endowments may also shape their willingness to engage in costly collective action.

Although limited to date, experimental approaches have shed light on the taxation-representation trade-off at the micro level. Laura Paler provided initial support for the trade-off by showing that citizens in resource-rich areas expressed greater demands for accountability following the discovery of resources.²⁰ Quasi-experimentally, Lucie Gadenne showed that Brazilian municipalities were likely to invest increases in revenues from taxes in public goods like education, but not so with unearned revenues like grants, which the municipalities used for discretionary projects.²¹ Brandon de la Cuesta and colleagues find that accountability demands by citizens depend on citizens' perceptions of ownership over the revenue, not just its source.²² In other words, citizens of rentier states do not blithely ignore the government, but rather conditionally support the regime if they see it as meeting its implicit contract to share the wealth.²³

We build on this experimental literature by examining a context in which regime change is a serious issue of contention. For these reasons, we expect that theories of regime change in political science and economics would be relevant.²⁴ We can understand the rentier state as an attempt to appease salient class groups and avoid regime change. In terms of threats from below,²⁵ if inequality increases and the rich are able to capture the lion's share of the rentier state's public goods, then the willingness of the poor to engage in costly mobilization to oppose the regime also rises. Similarly, as Thad Dunning shows, the rentier state can help to mitigate private sector inequality, but only if public goods represent true redistribution to the poor.²⁶ For these reasons, to avoid popular mobilization, rulers should try to make the rentier state as inclusive as possible, which Algeria was able to do during the earlier Arab Spring protest movement in 2011, by dispensing subsidies targeted at consumers.

However, rulers also need to keep elites co-opted, who often represent an immediate threat in terms of regime survival.²⁷ In fact, Barbara

²⁰ Paler 2013.

²¹ Gadenne 2017.

²² de la Cuesta et al. 2019.

²³ Ross 2012, 67.

²⁴ Acemoğlu and Robinson 2006; Boix 2003; Acemoğlu and Robinson 2008.

²⁵ Przeworski 2009.

²⁶ Dunning 2008.

²⁷ Gehlbach and Keefer 2011; Marinov and Goemans 2014; Ansell and Samuels 2014.

Geddes, Joseph Wright, and Erica Frantz show that oil has its greatest effect on authoritarian durability by avoiding coups from rival factions.²⁸ Popular mobilization, by contrast, is relatively rare and can also be contained with repression.²⁹ As a result, regimes need to appease the wealthy who often hold greater political staying power than the poor.³⁰ Prior research shows that the wave of protests that swept across the Arab world during 2011 was closely related to disenchantment among wealthy Arabs toward the decaying performance of the public sector.³¹

Fully testing dynamic models of regime change is beyond the scope of this article, but by employing a research design with granular treatments that vary by individuals in terms of wealth, we can probe the social and class cleavages that affect regime strategies and the responses of different groups to problems in the regime.³² For the poor, rentier benefits may have a very different effect on their political attitudes and behavior compared to the rich, which likely depends on the coalitional basis of the rentier state in question.³³ These potentially divergent theoretical predictions provide us with an opportunity to better understand how the taxation-representation trade-off matters in the midst of a highly salient episode of regime instability.

ALGERIA DURING THE HIRAK

We focus our study on Algeria, which is an excellent case for examining the taxation-representation trade-off proposed by rentier theory because the regime has had to face challenges to its patronage and welfare benefits due to population growth. Most recently, Algeria's Hirak protest movement in 2019 provided an ideal context in which to investigate the efficacy of the rentier state as it represented a rare episode of mass contention in a state with significant oil resources. While Algeria's petroleum resources never reached a per capita level of the small Gulf states, it possesses a considerable share of the world's oil resources—12.2 billion barrels of proven reserves—and for decades was able to sustain a quality of life above the regional average for its citizens. In addition to its natural resource endowments, Algeria is distinctive for its long-lived authoritarian regime.

Algeria has had authoritarian government since its hard-fought independence from France in 1962. Starting with the revolutionary leader

²⁸ Geddes, Wright, and Frantz 2014.

²⁹ Bellin 2004.

³⁰ Waterbury 1983; Waldner 1999; Haber, Razo, and Maurer 2003.

³¹ Diwan 2013.

³² Magaloni 2006; De La O 2013; Haggard and Kaufman 2012.

³³ Waldner 1999.

Ahmed Ben Bella in the 1960s, Algeria experienced a series of dictators who relied on the unquestioned dominance of the armed forces to maintain control. The security state further survived a decade-long war with the Islamic Salvation Front following botched elections in 1992, ending with the election of Abdelaziz Bouteflika to the presidency in 1999. Though Bouteflika did not have a military career, he was elected with the military's support, and he preserved the military's prerogatives over budgeting and lucrative economic enterprises.³⁴ On the whole, after the conclusion of the civil war of the 1990s, Algeria remained quite stable during Bouteflika's rule until the outbreak of the Hirak protests.

Although chalking up the regime's longevity solely to oil may be unrealistic, the high level of natural resources appeared to paper over the diminished legitimacy of the regime as the war for independence became a distant memory. One of the best examples of the regime's employment of rent to counter instability occurred during the Arab Spring, which started in neighboring Tunisia in late 2010. Although protests did spread from Tunisia to Algeria in spring 2011, an increase in government spending on food subsidies appeared to keep the protests from spiraling out of control.³⁵ Bouteflika further announced liberalization measures, which while partial and ultimately lacking implementation, increased benefits for Algeria's citizens.³⁶

While analysts acknowledge this largesse as contributing to the regime's stability, that the rentier state might not always deliver was also clear. As Lahcen Achy wrote in 2012, "If the price of oil suddenly drops, reducing the government's ability to control the budget deficit, this could fuel popular anger . . . to me, it is only a matter of time."³⁷ Similarly, Yahia Zoubir opined in 2016 that "strikes, protests, and riots are routine," although "the regime has been able to address them through payoffs in the form of higher salaries or housing vouchers."³⁸ Although the regime's natural resource revenues remained quite large, they did not increase in tandem with Algeria's population, which created stress on patronage policies and public goods provision. Algeria, like many other Arab states, used state-led development to create a new middle class that depended on a stable supply of government jobs as a path to advancement.³⁹ The macroeconomic data for Algeria in Figure 1 show the declining coverage of government expenses with oil receipts. Between

³⁴ Dillman 2000.

³⁵ Zoubir 2011.

³⁶ Zoubir 2011.

³⁷ Achy 2012.

³⁸ Zoubir 2016.

³⁹ Diwan 2013.

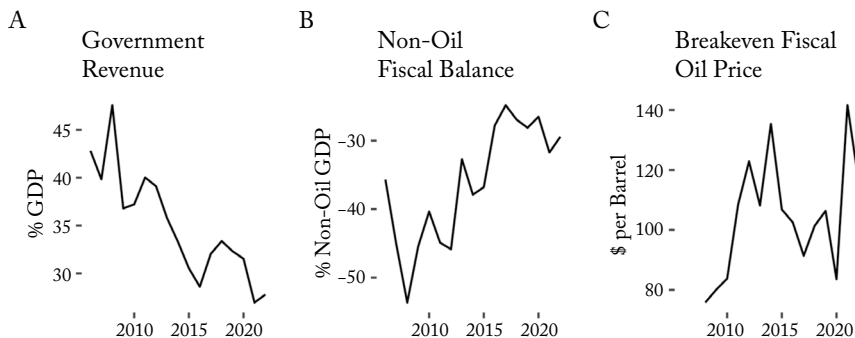


FIGURE 1
ALGERIAN FISCAL CAPACITY AND OIL RENTS

SOURCE: Statistical information taken from the FRED data repository of the St. Louis Federal Reserve Bank.

2010 and 2020, government expenditure as a percent of GDP (panel A, Figure 1) declined from the high 40s to the low 30s. At the same time, the fiscal balance of the government in terms of non-oil GDP (panel B), which is a measure of the extent to which the government relies on oil revenues, declined from -50 percent to about -30 percent. The reason for these declines had to do with the needs of a growing population and largely flat oil production at around 500,000 barrels per day. Consequently, the breakeven oil price (panel C), or the price at which the government can adequately fund its budget, grew from less than \$80/barrel at the start of the decade to more than \$120/barrel by the end, which left the government in an unsustainable fiscal position.

As such, while the system proved remarkably durable during the Arab Spring, informed observers had noted cracks in the rentier system. However, these conditions existed for some years before an aging Bouteflika, troubled with poor health, nonetheless decided to push for a fifth term as president. Algerian activists seized the moment, and on February 22, 2019, “millions of Algerians” participated in a march demanding Bouteflika’s resignation.⁴⁰ While survey data are limited, up to 50 percent of Algerians may have shown interest in turning out to protest during the movement’s high point in spring and summer 2019.⁴¹ Remarkably, this high level of participation continued for months as Algerians turned out each Friday, making use of focal points to sustain momentum.⁴² Although the protests decreased in size, the weekly

⁴⁰ Human Rights Watch 2022.

⁴¹ Grewal, Kilavuz, and Kubinec 2019.

⁴² Ketchley and Barrie 2020.

activism only ended when COVID-19 cases appeared in Algeria and the government mandated an end to gatherings.⁴³

The Hirak's main achievement came from forcing Bouteflika to step aside, one of its original demands. However, the movement was unable to stop the election of another regime insider, Abdelmadjid Tebboune, to the presidency in December 2019.⁴⁴ Because of these limited successes, importantly, state spending on salaries and welfare measures was not the only way that oil wealth influenced the success of the protest movement. Algeria's military is also much larger than its neighbors' and oil rents helped to fund their security apparatus that targeted protest leaders.⁴⁵ While Bouteflika's resignation signaled an important victory for the protesters, the movement did not ultimately succeed in regime change.⁴⁶

For this reason, the *pouvoir*, or system of elites, that many activists sought to destroy remained intact as of spring 2023. Even though Algeria's oil largesse provided housing, jobs, and education, the military and affiliated political elites still captured the lion's share of the rentier system's benefits.⁴⁷ Algeria's revolution replaced the French occupiers, but over time it created a new, domestic elite who had no qualms about ensuring their continued access to valuable rents. As such, Algeria is no exception to the patterns of crony capitalism and corruption prevalent in the region.⁴⁸ Replacing the leader without affecting the system that reproduced these inequalities could not result in lasting change, as the protest organizers knew well.

Concerns over elite bias in institutions figured prominently in the protest movement, suggesting that wealth endowments may have affected how people perceived the relative importance of the rentier state. Survey data from the Arab Barometer in 2019 found a plurality of respondents (41 percent) cited corruption and the quality of public services as the most important issues facing the country.⁴⁹ Unsurprisingly, the government's response to the Hirak was to appear as though it was rooting out corruption, indicting prominent regime figures and businesspeople on abuse of power and unjust enrichment.⁵⁰ As a result, we have prior reason to believe that not only the quality of the rentier state was at issue,

⁴³ Dris 2020.

⁴⁴ Human Rights Watch 2022.

⁴⁵ Brownlee, Masoud, and Reynolds 2015, 52–55.

⁴⁶ Grewal 2021.

⁴⁷ Dillman 2000.

⁴⁸ Malik, Atiyas, and Diwan 2020.

⁴⁹ Robbins 2019, 4.

⁵⁰ Marwane 2021.

but also whether benefits were being equitably distributed across class divides in the country.

To summarize, during the Hirak—an episode of regime contention—a significant number of people were upset with the regime's policies and, by extension, with the performance and legitimacy of the rentier state. Given the salience of the issue, we find it to be an appropriate time to ascertain to what extent the rentier nature of Algerian institutions helps to depress protests. By the presence of protests, we might infer that the rentier state's depressive effect on grievances is weaker than it was previously, and the nature of regime contention also suggests that the rentier state's future is far from certain. For this reason, a substantial number of people should exist, who, on the margin, might change their perspectives about the performance and legitimacy of the regime given new information.

RESEARCH DESIGN

Our research design aims to experimentally test the taxation-representation part of rentier theory using individual-level data in a country that had a plausible chance of undergoing a regime transition. Although we cannot manipulate Algerian institutions or oil deposits, we can influence the available information that respondents have about the generosity of their rentier state in regional comparison. We preregistered two hypotheses before our study:

—Hypothesis 1 (H1): A higher level of gasoline subsidies relative to neighboring democratic countries will encourage proregime attitudes and actions among citizens in a dictatorship.

—Hypothesis 2 (H2): A lighter tax burden relative to neighboring democratic countries will encourage proregime attitudes and actions among citizens in a dictatorship.

As with any manipulation, we need to be aware of the range of plausible counterfactuals. To compare Algeria to a counterfactual Algeria without oil or a counterfactual Algeria with democracy is impractical. Presumably so many other institutional and political variables would also change such that posing such a comparison to Algerians would result in unintelligible answers.

Instead, we compare Algeria to its immediate neighbor, Tunisia. Tunisia is a natural reference point because it has a long-shared history with Algeria, including decades spent under French colonization and similarly authoritarian institutions in the postcolonial period. However,

Tunisia is different from Algeria in two crucial aspects: first, Tunisia transitioned to democracy in 2010 during the heady days of the Arab Spring.⁵¹ Second, Tunisia has never had access to the vast natural resources of its neighbor. We think that Algerians were quite likely to rely on comparisons to neighboring countries during their period of regime contention due to the well-known heuristics of availability bias.⁵²

In fact, if Algeria did not have access to oil-funded patronage in 2010, it might have plausibly transitioned to democracy as Tunisia did in 2011. As such, this counterfactual comparison is based on a potential path that Algeria could have taken in recent history. Lindsay Benstead reports that Tunisia's struggles in the posttransition period influenced Algerians' perceptions of the strengths and weaknesses of democracy as a form of government, suggesting that Tunisia is the most relevant empirical model for Algerians when it comes to potential regime change.⁵³ In fact, Michael Ross uses Tunisia and Algeria to demonstrate how differences in oil endowments shape their remarkably different sizes of government despite the countries' similarities.⁵⁴

We use Tunisia as an empirically grounded counterfactual for the taxation and representation trade-off: Tunisia had a much more representative and accountable government, but also a much higher tax burden for a similar level of social services than did Algeria. Tunisia was able to serve as a baseline for Algerians to evaluate the generosity of the benefits they obtain in exchange for continued authoritarianism. In other words, if Algeria did not have both oil and a ruler willing to share the wealth to an acceptable degree, it might have looked like Tunisia, which was at the time a more democratic state with a higher tax burden.

Of course, this comparison is only relevant to the extent that the theory itself holds. For example, plausibly, Tunisia's transition to democracy and Algeria's authoritarianism had little to do with the former's lack of resources and the latter's abundance. If such a trade-off does not exist, then nothing would stop Algerians from deciding that they would prefer to receive their oil wealth under democracy regardless of the current regime type. However, if the trade-off does not exist, then informing Algerians about the nature of Tunisian public goods should result in null treatment effects and falsification of the rentier thesis that oil

⁵¹ We note that the antidemocratic actions of President Kais Saied since 2021 have put the viability of the country's democratic institutions in doubt. However, President Saied was not elected until after we completed this study.

⁵² Weyland 2012.

⁵³ Benstead 2014.

⁵⁴ Ross 2012, 29–30.

endowments diminish demands for representative government. If the rentier thesis does influence demands for democratization, then comparisons between oil-rich authoritarian countries and resource-poor democratic countries are a logical implication of the theory.

To make this comparison concrete, we designed two experimental comparative treatments based on three distinct policy regimes: gasoline subsidies, taxi rates, and VAT. As a petro state, Algeria passes on some of its hydrocarbon revenues to citizens by subsidizing gasoline, resulting in a divergence in gasoline prices between Algeria and Tunisia.⁵⁵ Although the government does not score very highly on budget transparency, analysts were able to estimate the value of fuel subsidies at \$20 billion USD in 2014. Although the Algerian government subsidizes other goods, the sheer value of these subsidies, and their close connection to the value of domestic hydrocarbon production, makes them an important part of any experimental treatment related to the rentier state and bargains over redistributive largesse.

In addition, research has previously shown gasoline subsidies to be inimical to democratization,⁵⁶ suggesting that they are an important mechanism besides tax burdens through which rentier largesse affects political calculations. While fuel subsidies are inherently regressive, they are still quite popular because the poor benefit even if the rich benefit to a larger degree on average.⁵⁷ In other words, even if the rich obtain more of the subsidies on average, the poor will be unlikely to rise up to protest the fuel subsidies because oil-related expenses may still make up a significant share of their monthly expenses.

We included taxi fares as an alternative to gasoline subsidies to extend this treatment to cover Algerians who did not own cars. The difference in gasoline prices between Algeria and Tunisia should also result in differences in taxi prices, which affect most of the population. For this reason, our gas treatment used either retail gasoline prices or taxi fares depending on whether the respondent owned a car. To estimate gasoline prices, we used historical gas pump prices for both countries.⁵⁸ Estimating taxi prices is somewhat more difficult, though we were able to use crowd-sourced websites to come up with plausible average rates of taxi fares for both countries.⁵⁹

⁵⁵ In fact, gasoline smuggling is a lucrative occupation for residents of the mountainous Algerian-Tunisian border; Ghanem 2020.

⁵⁶ Fails 2019.

⁵⁷ Kyle 2018.

⁵⁸ See https://www.globalpetrolprices.com/Algeria/gasoline_prices/.

⁵⁹ See https://www.numbeo.com/taxi-fare/country_result.jsp?country=Algeria.

We acknowledge that using separate treatments means that each group will receive a different stimulus even if the aim is the same. In our main results, we pool these treatments together, and in the supplementary material we report disaggregated treatments. We note that differences between these treatment groups cannot necessarily be attributed to differences in the treatments, given that treatment assignment is endogenous to owning car and possibly other causal factors related to car ownership.

We chose to operationalize taxation in terms of indirect VATs because data on direct taxes, such as income taxation, are difficult to obtain and potentially of low quality, especially in Algeria. In addition, direct taxes represent only a small part of the taxation burden in much of the region.⁶⁰ For VAT rates, we can draw on helpful, existing research of both nominal rates and total product coverage. Algeria's VAT rate of 19 percent is nominally the same as Tunisia's. However, the Algerian VAT is applied to far fewer goods according to research on VAT coverage rates by the IMF.⁶¹ As such, the effective VAT burden is far lower in Algeria than in Tunisia.

We then used these observed prices and VAT coverage rates to determine how much an individual might spend on gasoline, taxis, or the VAT in Tunisia given a similar amount spent in Algeria. Table 1 shows these calculations for a hypothetical amount of 100 Algerian dinar (DZD) spent in Algeria. A respondent received the gas treatment if they reported owning a car and the taxi treatment if they did not. We report these two treatments as one combined treatment in the results.

As can be seen, hypothetical expenditures on both gas and goods covered by the VAT are roughly double what a person in Tunisia might pay relative to Algeria. Expenditures for taxis in Tunisia are not twice as high as in Algeria, likely due to the fact that taxi rates are kept arbitrarily low in Tunisia, which has resulted in taxi driver protests in recent

TABLE 1
TREATMENT CALCULATIONS

| <i>Type</i> | <i>Amount Spent in Algeria</i> | <i>Counterfactual Spent in Tunisia</i> |
|--------------|--------------------------------|--|
| Gasoline | 100 DZD | 200 DZD |
| Taxis | 100 DZD | 117 DZD |
| Spent on VAT | 3 DZD (for 100 DZD in goods) | 7 DZD |

⁶⁰ Jewell et al. 2015.

⁶¹ Jewell et al. 2015.

years.⁶² In any case, clearly, the rentier state in Algeria does permit less taxation and a higher rate of subsidy of petrol relative to the less well-endowed Tunisia. We believe that this information—at least in this precise a form—would be relatively novel for Algerians and would provide an informative baseline for them to evaluate the amount that they are benefiting from the rentier state and whether that trade-off might justify continued authoritarianism.

The treatment text was:

Based on what you entered, you paid [*respondent amount*] DZD for [gasoline/taxis/VAT goods] last year. If you lived in Tunisia, a democracy, where [gas/taxis/VAT] receives fewer subsidies, you would probably have spent [*recalculated respondent amount*] DZD on [gas/taxis/VAT].

The inclusion of the phrase, “a democracy,” was to ensure that respondents would make the correct inference about why Tunisia was the baseline with which they should compare. However, out of concern that this suggestion would be too subtle, we also added the following text to 50 percent of the treatments: “However, Tunisia also has free and fair elections where people can hold politicians accountable.” This additional line of text provided some further internal validity at the risk of heavy-handedness. This treatment-within-treatment will help us to understand if respondents’ perceptions of the treatment is influenced by subtler or more direct phrasing.

While these treatments provided information specific to individuals about their exposure to the rentier state, we also employed a treatment that contained general information about Algeria’s oil resources. This treatment exploits the same counterfactual as that of the panel regressions mentioned earlier: over-time change in the amount of fuel earnings. If Algeria’s dependence on oil revenues increases, then taxation makes up a smaller share of overall government revenue. To capture this version of the treatment, we showed the following text to a subset of respondents:

For every 100 DZD the Algerian government collected in 2016, 34 DZD came from oil and the rest (66 DZD) came from people’s taxes. Since then, however, the government has become *more* reliant on oil for each 100 DZD it spends. By last year oil as a share of the government’s money accounted for 40 DZD for every 100 DZD collected.

By comparison to the individual-level treatments, this treatment examines how Algerians might respond to information about the overall

⁶² For example, see <https://crisis24.garda.com/alerts/2023/09/tunisia-taxi-drivers-in-sfax-plan-to-strike-sept-14>.

state of their oil resources. This information is likely relatively novel for respondents, as it involves specifics about how much the Algerian government currently relies on oil resources. Theoretically, we would expect this information to have a similar kind of effect to the individual treatments because it shows that the government is obtaining more revenue from oil resources as opposed to other sources, such as taxes.

We are implementing these treatments in a very high salience environment—literally, a revolution in the making—in which government policies and legitimacy are hotly debated. As such, priming effects are unlikely to have much if any role in the interpretation of the treatment. Rather, the treatments' efficacy comes by offering new information that respondents would be very unlikely to have had. Given the high salience of the legitimacy of the rentier state, we can be quite confident that any effect of the treatment will come via this new information, not simply by prompting respondents to think about the government in general. If our aim was to identify the effect of primes, this level of background salience would be problematic, but as our aim is to identify the effect of new information about the respondents' benefits from the rentier state, this context is ideal because we expect respondents to give the treatment's information serious thought as it relates to ongoing political discourse.

To test the theory, we need to operationalize variables with survey questions that are the most relevant to the theory. Given that diverse strands of the theory exist, we also examine several different outcomes, including Algerians' attitudes toward their government and its provision of public goods, and their willingness to take specific actions that could be interpreted as making representative demands in terms of regime change. We label the first set of outcomes as *governance* measures, and the second as *accountability* measures. The first group of measures covers a wide set of criteria for evaluating the quality of Algeria's government, but is only probabilistically correlated with potential demands for representation. In other words, a respondent could reduce their perception of the government's performance without necessarily increasing representative demands. At the same time, public goods provision is a key criterion underlying the bargains that rentier state theory supposes citizens make with the regime.

To address political action directly, we also include measures that correspond to the respondent's support for and confidence in the current regime, including willingness to join a protest and to keep liquid financial assets within the country. Because the Hirak had explicitly democratic goals, such as for free and fair elections, we know that willingness

to protest represents a relatively costly way of making demands for representation. Furthermore, we know that substantial variation occurs in this dependent variable, given that protest intentions changed dramatically over the course of the HIRAK,⁶³ which makes it more likely that we would be able to cause a change in protest intentions. While both sets of outcomes are relevant, our interpretation of rentier state theory suggests the accountability outcomes are more direct tests of the taxation-representation tradeoff, though we note that a consensus in the literature on this question does not exist yet.

GOVERNANCE MEASURES

Our governance measures come from the following survey question:

How would you rate the government's performance in these areas on a scale of 1 to 10:

1. Providing employment for its citizens
2. Helping Algerians obtain health care and a quality education
3. Ending corruption among government officials
4. Reforming in response to citizens' concerns
5. Maintaining stability and social order

ACCOUNTABILITY MEASURES

Our accountability measures come from the following survey question:

On a scale of 1 being very unlikely and 10 most likely, how likely are you to take the following actions in the next 3 months:

1. Participate in a street protest
2. Visit a government official to complain about government services
3. Move personal funds to bank accounts overseas
4. Transfer funds from Algerian currency to other currencies

Importantly, our actions include those that can unambiguously represent demands for representation—that is, joining street protests with a movement calling for the overthrow of the regime—and others that are somewhat ambiguous. Transferring funds into and out of Algerian currency or moving money overseas can be a way of holding the regime accountable by moving assets out of the country.⁶⁴ Using multiple measures allows us to track the effect of the treatment across the diverse ways that individuals understood confidence in the regime, though joining protests would seem to be the most direct way of expressing opposition given the size and strength of the HIRAK.

⁶³ Kilavuz, Grewal, and Kubinec 2023.

⁶⁴ Bates and Lien 1985.

We preregistered all the outcome and experimental treatments; although, we added the additional treatment text mentioned above after we filed the preregistration. Although the preregistration includes a power analysis, it does not include a description of additional analyses such as subgroup effects. For that reason, any such subgroup analyses should be considered exploratory, and we limit ourselves to examining treatment heterogeneity in the main text that is a part of the treatment—that is, by examining respondents' wealth endowments. We include additional exploratory analyses of subgroup effects in the supplementary material.

As we discuss in the next section, our actual data collection exceeded our preregistered power projections by a significant margin, so we do not believe that examining additional treatment interactions will necessarily result in spurious inference as a result of “the garden of forking paths.”⁶⁵ We provide simulation evidence in section 3 of the supplementary material to show that our design is well-powered to detect subgroup effects as small as one-tenth of an standard deviation.

DATA

Collecting survey responses in the midst of a national upheaval in a highly repressive authoritarian regime necessitates employing techniques that are more flexible than traditional face-to-face surveys. To do so, we recruited 9,721 Algerian residents (excluding members of the military and security forces) from April to July 2019 via advertisements on Facebook. Facebook is by far the most popular social medium in the Middle East, used widely across age demographics and by official authorities.⁶⁶ Our advertisements, which asked for Algerians' opinions about the protests, attracted considerable attention, allowing us to recruit our nearly 10,000-respondent sample with a budget of only \$5,000, which included providing a 100 DZD mobile credit (approximately \$0.75) to all who finished the survey.⁶⁷ In total, we have 2,439 respondents in the control; 3,919 respondents who received at least one version of the fuel subsidies treatment (cars or taxis); 2,366 respondents who received the tax treatment; and 997 respondents who received the oil revenue message. The treatment groups are not equally sized because we added the oil revenue message after the survey had begun to be

⁶⁵ Gelman and Loken 2013.

⁶⁶ Dennis, Martin, and Hassan 2019.

⁶⁷ Not all respondents received a credit, either because they did not provide a mobile number or they did not provide a valid mobile number.

fielded. The fuel subsidy treatment group is larger to allow for the two treatment types, cars or taxis, to be differentiated.

We note that the size of these treatment groups permits highly precise inference on even very small treatment effects. Our actual sample size of 9,721 exceeded the upper bound of our projected preregistered power analysis by nearly 5,000 respondents, permitting us to add an additional treatment arm. Although false positive results are only one possible threat to inference, we believe that our experiment is powered enough to detect an effect if one exists and is of any appreciable size. Furthermore, the design is well-powered for examining subgroup and interaction effects, and, as we discussed above, large subgroup effects are unlikely from sampling variation alone.

Although the online design was both cost-effective and possible to field in a limited time frame, we also knew it was necessary from extensive personal experience, given Algeria's heavy-handed restrictions on social science research, which have allowed very few surveys over the past several decades. In addition, online designs have an advantage in terms of safeguarding respondents' privacy, who can take the survey in secure locations, as well as reducing risks for enumerators who do not need to be on the ground. Aside from the voluntary collection of mobile numbers for reimbursement, the survey was anonymous, permitting more confidence in the safe and valid collection of opinions about Algerian politics. Research has shown online surveys to be better at collecting sensitive information,⁶⁸ reducing our concern over sensitive survey bias. In addition, political opinions and protest participation were not particularly sensitive during this time period in Algeria thanks to the constant presence of public protesters making radical demands against the regime.⁶⁹

The sample did not conform exactly to Algeria's population demographics, as can be seen in Table 2. The differences are most pronounced for age demographics, with overrepresentation of those under thirty and relatively few respondents over the age of sixty-five. On the other hand, we matched census totals for the total number employed and also for sex.

To adjust for potential bias, we implemented multiple regression with poststratification (MRP), a powerful method utilized heavily in online survey research.⁷⁰ To do so we constructed a contingency table of the population totals of Algerians by district, age, and gender, and reweighted

⁶⁸ Chang and Krosnick 2010.

⁶⁹ Kuran 1989.

⁷⁰ Wang et al. 2014.

TABLE 2
COMPARISON OF ALGERIAN SAMPLE DEMOGRAPHICS
TO CENSUS PROPORTIONS

| <i>Variable</i> | <i>Sample Proportion</i> | <i>Census Proportion</i> |
|-----------------|--------------------------|--------------------------|
| Male | 51.3 | 50.4 |
| 20–24 | 25.8 | 15.7 |
| 25–34 | 18.9 | 11.4 |
| 45–54 | 6.3 | 12.4 |
| 65+ | 0.3 | 7.6 |
| Suburban | 19.5 | NA |
| Employed | 36.2 | 37.4 |
| Retired | 2.7 | NA |
| Unemployed | 23.0 | 10.5 |

our model predictions by each of the 864 cells in the contingency table. Because MRP is a model-based method, the uncertainty from using point predictions for specific district-age-gender cells will propagate into our treatment effect estimates. For example, because we use MRP to predict values for all over-sixty-five cells in the census data, we force our estimates to incorporate our uncertainty about this small proportion in our data relative to the population. For this reason, we believe that we can plausibly interpret our estimates as being nationally representative along these three dimensions. The large size of our sample further allows us to be more confident that this method will work well. For example, even though only 2.5 percent of the sample is over the age of 55, this subgroup still totals 131 respondents, giving us reasonable statistical power for adjustment even for this older demographic.

While much of the data are straightforward to analyze given that it was collected via an online instrument, we did need to perform additional validation to create a measure of socioeconomic status (SES) resources. To do so, we employed a latent variable model⁷¹ and collapsed a wide range of indicators of both income and wealth. We did so because, as is often the case with survey data, considerable measurement error exists in any single indicator, including monthly income. Furthermore, to understand how respondents may be affected by the rentier state, we need to know the respondents' overall level of resources rather than simply their current monthly income.

The inputs to our latent variable model included whether a respondent owned a car, a farm, a small, medium, or large business, a house;

⁷¹ Kubinec 2019.

whether they had a domestic or foreign bank account; sex; age; opinions about the state of the economy; level of education; a categorical measure of monthly income; the respondent's governorate; location (rural, urban, or suburban); and also the amounts respondents reported spending on fuel, taxis, and VAT goods in the experimental treatments. Combining all of these with appropriate statistical distributions and employing a two-stage correction for nonignorable missing data,⁷² we then estimated an SES scale, which we show in Figure 2. Although the scale is continuous, it shows discrete breaks because categorical variables with a strong effect on SES (ownership of homes or businesses) were included in the estimation. The full list of discrimination parameters (that is, factor scores) for all covariates in the SES scale is shown in Figure A2 in the supplementary material.

Of note, the SES scale is a latent variable, and as such it does not need to follow a power law distribution like reported income does. Rather,

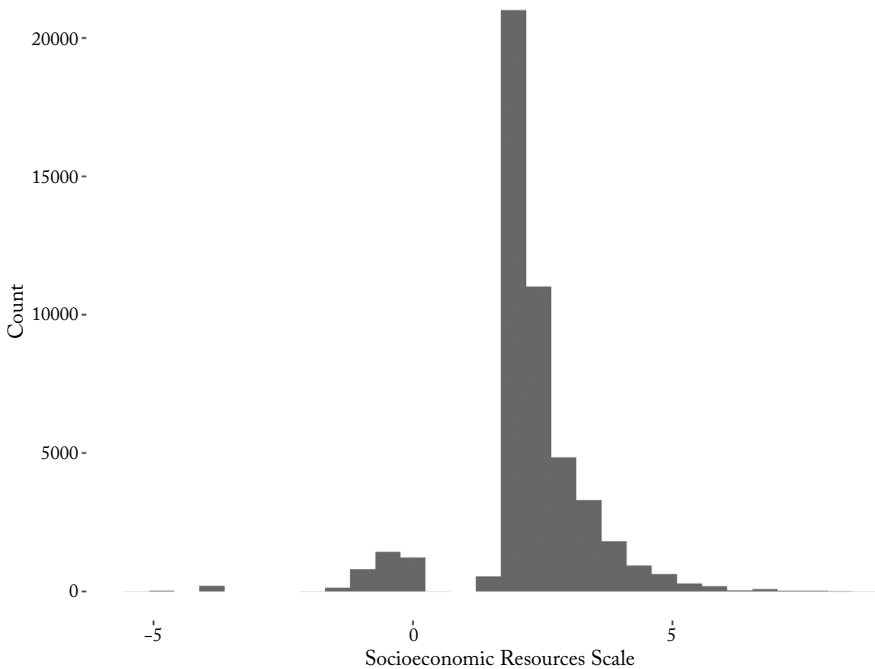


FIGURE 2
HISTOGRAM OF SES SCALE FROM SURVEY DATA

⁷² Kubinec 2019.

the scale is useful for making relative comparisons between respondents in terms of their wealth position rather than their absolute amount of income. We do note that relatively few of the respondents are either very poor or very rich (scores above or below ± 5), with the majority reporting at least some income or other source of support.

RESULTS

In the supplementary material we report the treatment interactions with the additional text incorporated about Tunisia's multiple rounds of free and fair elections. These results do not show any noticeable increase or decrease in treatment effectiveness, suggesting that the simpler wording was able to communicate the nature of the trade-off we wanted respondents to infer between Algeria and Tunisia.

We first report the average treatment effects (ATEs) for each treatment group in figures 3 and 4. Estimates shown in all figures are the mean posterior estimates and 5 percent to 95 percent uncertainty intervals derived from MRP-adjusted predictions. The taxi and gas treatments are combined into one treatment result labeled fuel subsidy, while the change in oil revenues treatment is listed separately. To calculate ATEs adjusted with MRP, we first estimate predicted average values from the zero to ten scales used to evaluate either the respondent's attitude toward the government or the respondent's likelihood of engaging in a certain type of behavior for both treatment and control. These predictions were then adjusted using the Algerian census data with MRP as discussed previously, and as such are plausibly representative of the population, at least in terms of the distribution of gender, age, and sex by district. To obtain an ATE, we then subtracted the treatment average predicted value from the control average predicted value.

The adjusted ATEs for governance outcomes in Figure 3 show that receiving information about an individual's tax burden, relative level of fuel subsidies, or government's increasing reliance on oil revenues causes an increase on average among our respondents in terms of improved perceptions of the government's performance. The effect is quite stable, of medium strength (roughly $+0.3$ to $+0.5$ on a scale of 0 to 10), and holds true for the three treatments. By comparison, the predicted ATEs for the accountability outcomes show much less movement. Only for one outcome, complaining to a government official, do we see statistically significant differences, and these are also smaller than the governance effects (approximately $+0.2$ to $+0.3$). For the other outcomes, confidence intervals indicate few differences, which suggest few meaningful

WORLD POLITICS

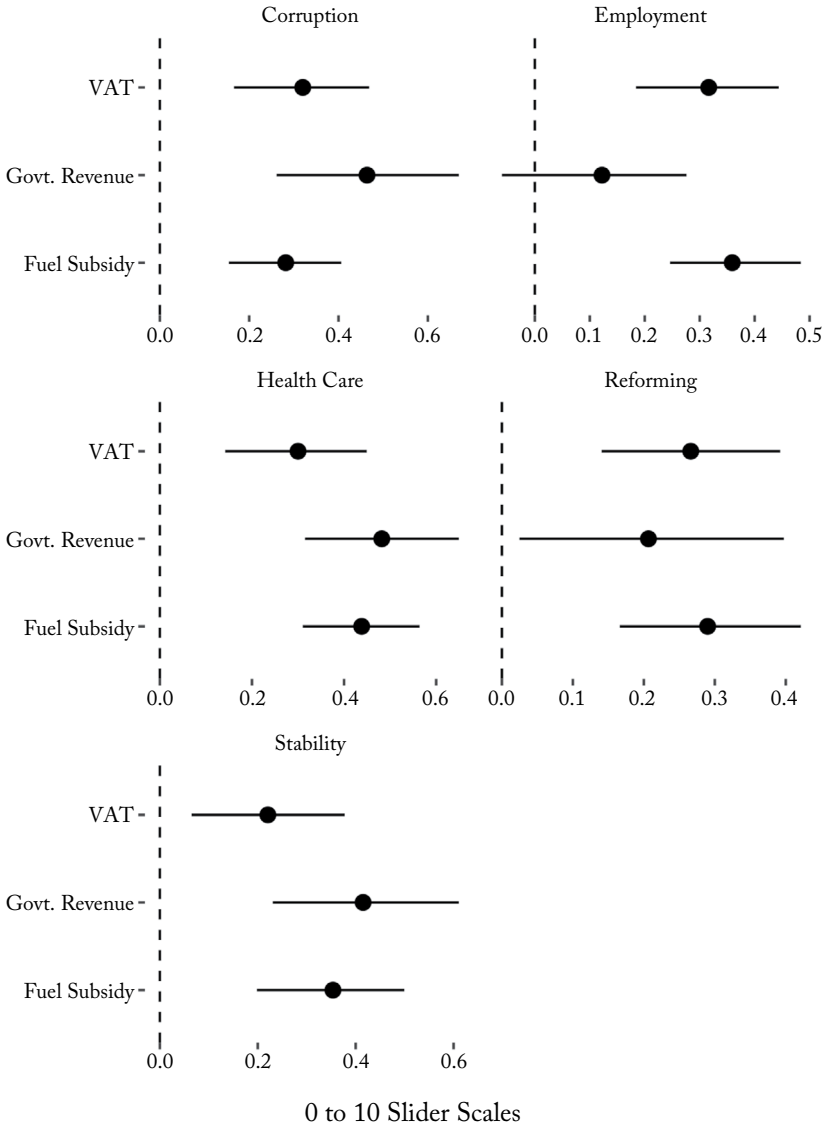


FIGURE 3
 PREDICTED VALUES (ATEs) BY GOVERNANCE OUTCOME,
 ADJUSTED WITH MRP^a

^a Estimates are the difference of the predicted values of the zero to ten outcome assessing the government’s performance between treatment and control. Estimates are adjusted with MRP to match Algerian census totals.

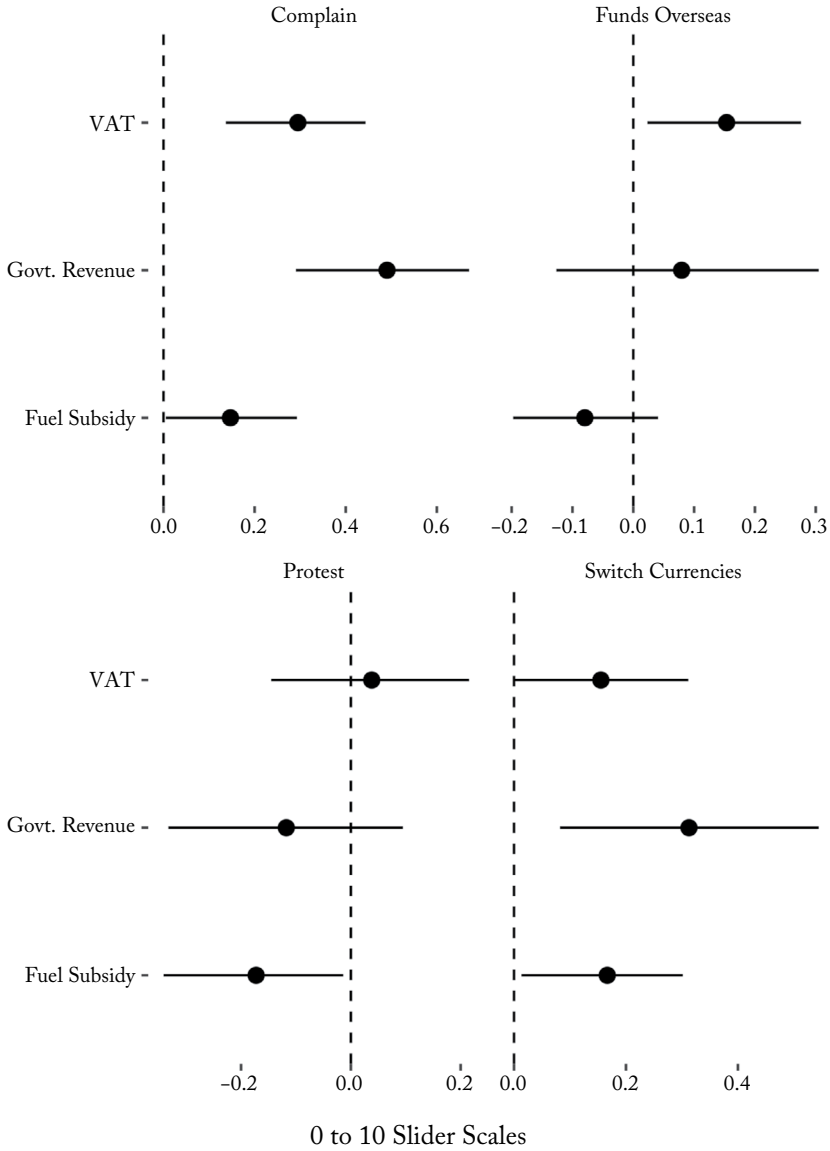


FIGURE 4
 PREDICTED VALUES (ATEs) BY ACCOUNTABILITY OUTCOMES,
 ADJUSTED WITH MRP^a

^a Estimates are the difference of the predicted values of the zero to ten outcome assessing the government's performance between treatment and control. Estimates are adjusted with MRP to match Algerian census totals.

treatment effects. As such, we believe that for our accountability measures we have what are in essence null results. In other words, when we compare respondents who received our informational treatment to those who did not, few if any statistically discernable differences occur in terms of their willingness to engage in protests or move financial assets to other countries.

In section 1 of the supplementary material we report the disaggregated fuel treatments—that is, separated by whether the respondents received the gasoline or taxi texts. These results reveal that in some cases discrepancies do exist between the treatments, but it is always for a case in which the effect is a null for one group and not for the other. We find no cases in which people who owned cars experienced opposite effects of the treatment from those who take taxis, and in the majority of cases, the estimates are similar in magnitude.

Based on these results, Algerians were seemingly interested in the information that we provided and to at least some extent updated their priors about the quality of governance in their country. We do not see massive changes in behaviors that could affect the success of the Hirak, suggesting that messaging and information provision about the government's largesse would not stop the Hirak even if such information were widely available to Algerians.

These mixed results for our governance and accountability measures could be interpreted as a falsification of the rentier thesis if the accountability outcomes are seen as the most valid measures of the theory's predictions. On the other hand, if the governance outcomes are the better test of the theory, then the rentier thesis would have moderate but consistent support. Respondents who received the informational treatment rate government services more highly than those who did not. We do not believe, though, that conclusions should be drawn without examining the heterogeneity within the treatment itself, which necessarily incorporated varying information depending on the amount spent on fuel subsidies or goods covered by the VAT. For this reason, we next examine wealth as a potential moderator of the treatment's effects.

EXPLORATORY ANALYSES: WEALTH AS A MODERATOR

Because we did not preregister the analyses that follow, we denote these results as exploratory. Additional analyses of subgroup effects can be seen in section 4 of the supplementary material. In this section we interact each treatment with the SES scale that we explicated previously, and we show the results for this interaction in Figure 5 for the governance

outcomes and Figure 6 for the accountability outcomes. Due to the large number of treatments and outcomes, each plot shows a comparison between the predicted outcome for control and one treatment group across values of the SES scale. As with the sample average effects, we also adjust these results with MRP for population representativeness.

These interactions reveal important treatment heterogeneity for the governance outcomes in Figure 5 that is masked by the sample average effects. Although differences in size and strength exist across treatments, the treatment effect of encouraging stronger perceptions of the government's performance is concentrated among the wealthy. Among poor respondents, providing the treatment had a null effect on their attitudes toward governance. It is interesting as well that the lines in Figure 5 all slope upward—that is, the wealthy almost always have a more positive response to the treatment than do the poor.

Figure 6 shows the same patterns as those in Figure 5, though treatment heterogeneity is strongest for protest intentions. Very poor respondents tended to report much higher willingness to protest following the receipt of information, indicating that they were not particularly impressed with the government's generosity, while the wealthy became much less willing to protest. The effect is sizable and reaches nearly -2 points on the scale for the fuel subsidy and VAT treatments among the top end of the income distribution. While the relationship is not as strong for other outcomes, we do observe clear patterns of the wealthy responding to the treatment with less antiregime sentiment than the poor, such as the downward sloping lines in the *moving funds overseas* and *switch currencies* outcomes in the fuel subsidy column in Figure 6.

The treatment heterogeneity for protesting is so strong that even if we consider a much smaller range of the SES variable, such as -1 to $+1$, quite a large effect on the intention to protest outcome scale (approximately $+1$ to -1) still occurs. Compared to other effects that we estimate in this article, this relationship is an order of magnitude stronger, and it is precisely estimated.

Furthermore, we note that across governance and accountability measures, the SES moderation relationship is always in the direction of the wealthy improving their perceptions of the regime, either by taking fewer actions that would hold the regime accountable or by improving their assessments of the regime's provision of public goods. If this pattern were ad hoc, we would not expect to observe such consistency across outcome measures. In no case does the opposite pattern hold—that is, we never observe the poor responding more positively to the treatment than do the wealthy.

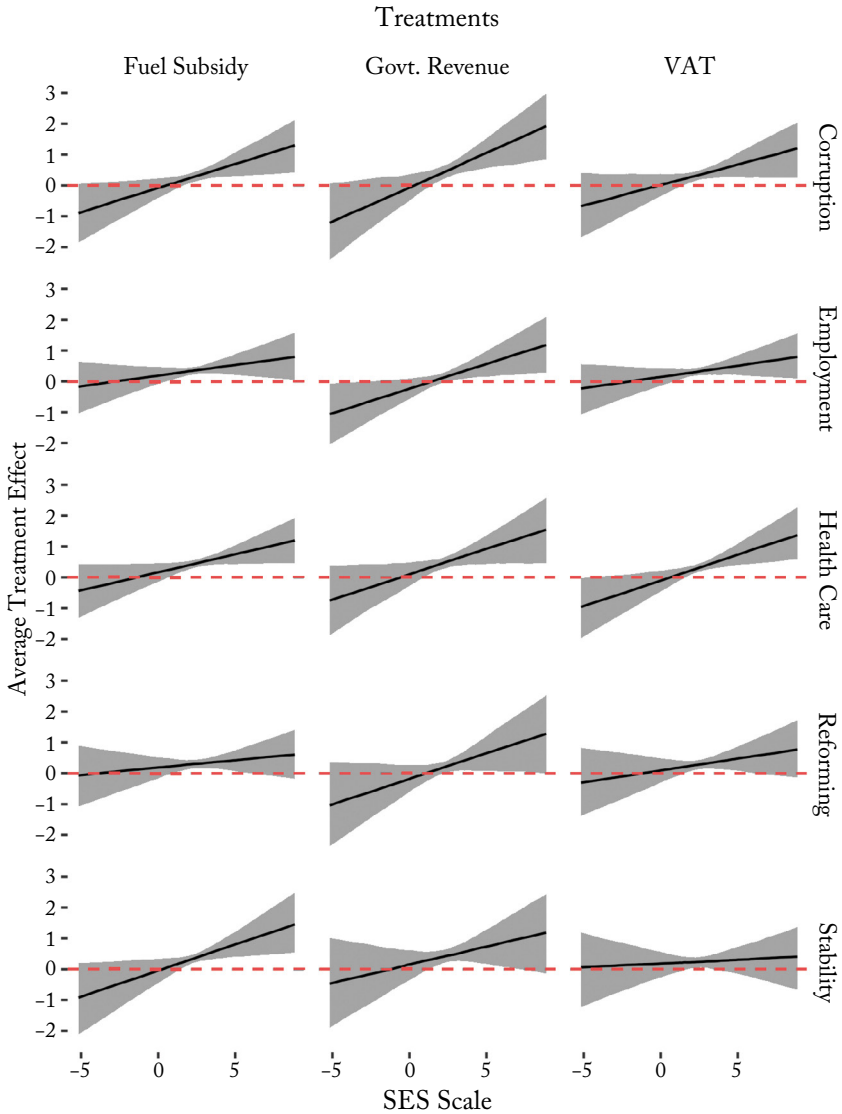


FIGURE 5
PREDICTED VALUES (ATEs) CONDITIONED BY SES SCALE,
GOVERNANCE OUTCOMES^a

^a Estimates are the difference of the predicted values of the zero to ten outcome assessing the government's performance between treatment and control. Estimates are adjusted with MRP to match Algerian census totals.

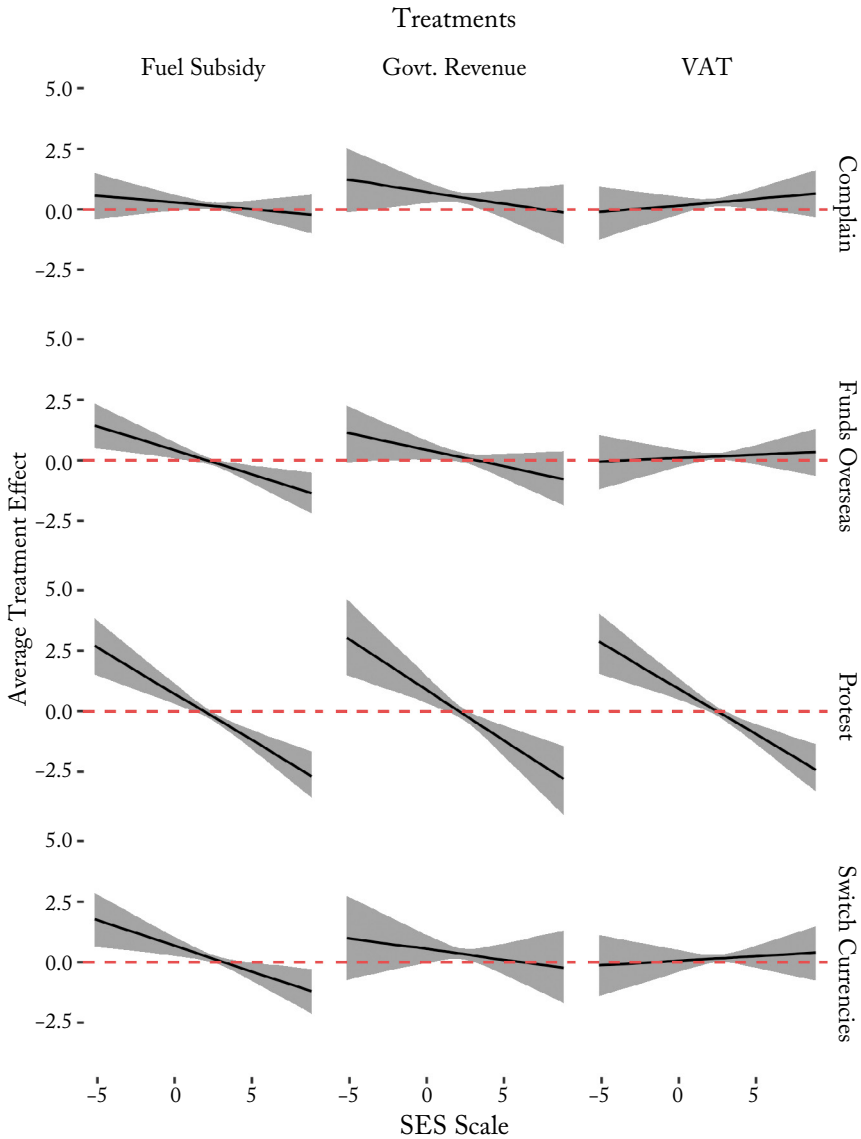


FIGURE 6
 PREDICTED VALUES (ATEs) CONDITIONED BY SES SCALE,
 ACCOUNTABILITY OUTCOMES^a

^a Estimates are the difference of the predicted values of the zero to ten outcome assessing the government's performance between treatment and control. Estimates are adjusted with MRP to match Algerian census totals.

This pattern suggests that the HIRAK is more heterogeneous than it may have appeared in the media. While it was certainly a national movement and had representation across relevant cleavages, including Berbers and Arabs, it also had people with varying relationships to the state and different assessments of the costs and benefits of opposing the regime. Presumably the success of the HIRAK meant that the poor and the wealthy found enough common ground to push for change, but our results show that this unity may not have lasted beyond the movement's goals of leadership replacement and regime change. If this is the case, the trajectory of the HIRAK would have been similar to other movements following the Arab Spring that struggled to maintain unity once contentious politics gave way to party-building and elections (and in many cases, the return of elite machinations).

The main discrepancy in terms of the SES moderation relationship between figures 5 and 6 may also explain the differences in ATEs for the governance and accountability measures. According to Figure 5, the treatment had a null effect on the poor's views on government public goods provision, while it had a positive effect for the wealthy. As such, the moderately positive ATEs reported in Figure 3 would be consistent with a situation in which a particular subgroup (the wealthy) was responsive to the treatment while the treatment did not affect other groups (the poor).

By contrast, Figure 6 shows that the poor updated in the opposite direction of the wealthy in response to the treatment. These so-called backlash effects could explain why the estimated ATEs for accountability measures in Figure 4 are null effects. If the poor and the wealthy update in roughly proportionate opposite directions, the estimated ATE will be zero.

We cannot, though, assert with complete confidence that this interpretation is the correct one, as we cannot observe with our survey data how respondents became poor or wealthy. We can identify the effect of the treatment within subgroups, but we cannot say with our survey data alone why respondents are in one subgroup over another. For these reasons, even if we had preregistered all of these analyses, we would not be able to say with complete certainty that the wealth of respondents is what is driving the results. However, as we noted earlier in the article and discuss below, rich theoretical reasons do indicate that wealth distributions should affect political actions and opinions, so at the very least these results would show potential connections between the rentier state literature and broader political economy theories about the role of class groups in regime change.

PROBING THE WEALTH RESULT

In this section, we use additional survey data to provide context to help interpret this important moderation relationship. Despite the limitations of cross-sectional data, we are able to show that wealthy respondents were very interested in the protest movement, though their opinions diverged in terms of support. In addition, the wealthy show a different understanding of the goals of the protest movement, with wealthy respondents emphasizing institutional reforms that would lead to core features of democracy, while poor respondents wanted the Hirak to address income inequality and redistribution. These diverging understandings of democracy suggest that the wealthy did not see redistribution as a major threat following democratization, and our reminders of the potential political-economic effects of regime transitions may have changed their assessment of the costs and benefits of the Hirak.

Several different questions about the protests help us to understand how the poor and the wealthy diverged in their views of the Hirak. First, Figure 7 shows average values of SES by answers to a question about how likely they were to protest. On the whole, respondents in our survey who were wealthy were also more likely to report being “very likely” or “somewhat likely” to protest in the coming days. This association rises monotonically from “very unlikely” to “very likely,” implying that the relationship is broadly linear. The plot shows that the Hirak was not a revolution only of the poor, as wealthier respondents—whether the

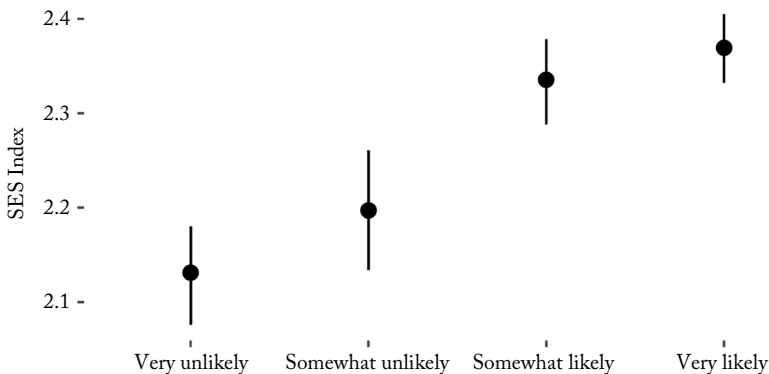


FIGURE 7
AVERAGE RESPONDENT SES BY REPORTED INTENTION TO PROTEST^a

^a Plot shows average SES index values with 5 percent and 95 percent bootstrapped CIs by reported protest intentions for all 8,724 observations.

middle or upper class—were even more willing to take to the streets than their poorer counterparts.

Figure 8 similarly asks respondents about their support for the protest movement. This figure shows an interesting U-shaped relationship, in which wealthier respondents were both more willing to report strong support and strong opposition to the protest movement, while poorer respondents were more likely to report neutrality vis-a-vis the Hirak. This figure suggests that the protest movement was uniquely polarizing for wealthier respondents, with some strongly supporting the movement and others firmly against it. On the whole, though, wealthier respondents were more likely to support rather than to oppose the Hirak.

Figure 9 provides important evidence about divergence between the poor and the wealthy by examining a question in which respondents selected which goals they believed to be important for the Hirak to achieve. The figure reports average SES for those who selected each goal. This figure has a clear pattern: higher SES individuals preferred institutional reforms, such as promoting democracy, fighting corruption, and even a complete change in the regime. By contrast, lower SES respondents preferred goals that would appear to address income inequality, such as raising wages and fighting unemployment. These patterns suggest that the wealthy believed the Hirak would usher in a democratic regime, but they did not believe that it would lead to economic redistribution or other radical changes to the wealth distribution. The poor, on the other hand, believed the Hirak would in fact achieve these aims.

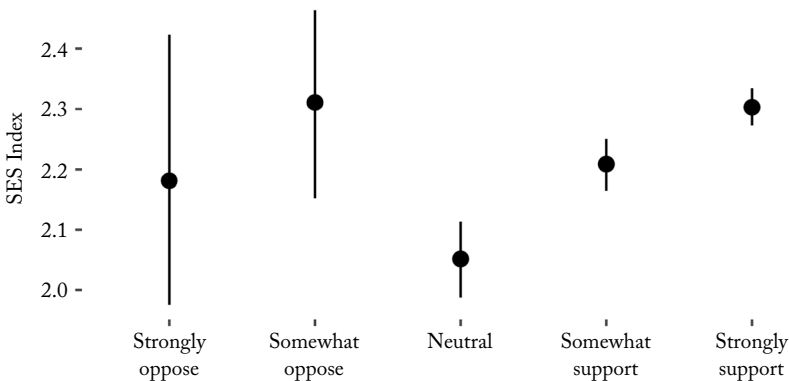


FIGURE 8
AVERAGE SES BY REPORTED SUPPORT FOR THE PROTEST MOVEMENT^a

^a Plot shows average SES index values with 5 percent and 95 percent bootstrapped CIs by reported support for the protests for all 8,724 observations.

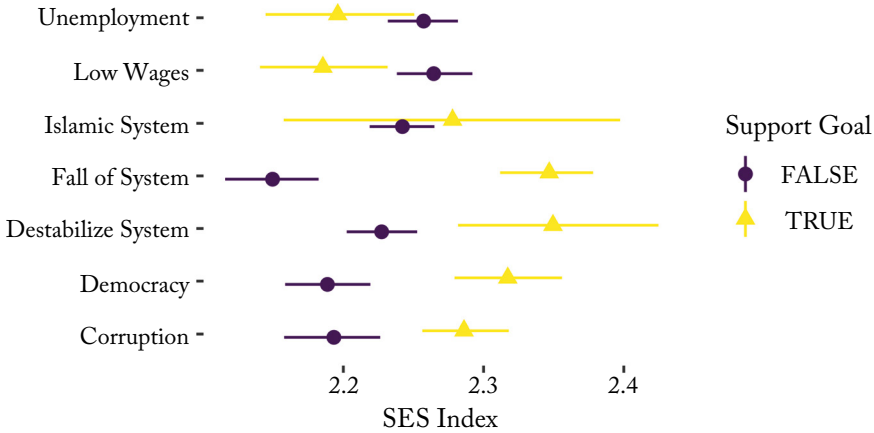


FIGURE 9

AVERAGE SES BY REPORTED AGREEMENT WITH POTENTIAL HIRAK GOALS^a

^a Plot shows average SES index values with 5 percent and 95 percent bootstrapped CIs by reported support for protest goals for all 8,724 observations.

Although we cannot make definite conclusions from these patterns, they do provide a plausible interpretation for our strong treatment heterogeneity by SES. The wealthy may have discounted the potential revolutionary aspects of the Hirak, believing they could achieve institutional reforms without corresponding changes to the political-economic structure. Once we reminded them of possible ramifications of regime change, the wealthy updated against the Hirak. Poor respondents, on the other hand, were only reminded of their exclusion from the remaining benefits of Algeria's rentier system, and became even more adamant about wanting regime change.

FURTHER SPECIFICATIONS

We also examine some further specifications in Table 3 to understand other facets of the treatment, both in terms of model specification and in terms of outcomes in our survey, which were posttreatment but not preregistered. The first column in Table 3 reports a quadratic specification for SES in which we interact the treatment with both SES and its square, SES^2 , on our intention to protest outcome. We estimated this model to help us understand if the effect is concentrated at a certain part of the income distribution, such as peaking among the upper-middle class or the very wealthy. The quadratic column in Table 3 shows that we do not have reason to believe that the effect is concentrated

TABLE 3
 ADDITIONAL OUTCOMES WITH SES MODERATION OF TREATMENT^a

| | <i>Quadratic</i> | <i>Democracy</i> | <i>Corruption</i> |
|----------------------------------|----------------------------|----------------------------|----------------------------|
| SES | 0.555 [0.267, 0.846] | 0.129 [0.014, 0.247] | 0.214 [0.131, 0.301] |
| SES ² | -0.013 [-0.064, 0.042] | | |
| Fuel Subsidy | 0.838 [0.182, 1.373] | 0.088 [-0.253, 0.447] | 0.281 [0.040, 0.555] |
| Fuel Subsidy × SES | -0.497 [-0.879, -0.104] | -0.076 [-0.221, 0.058] | -0.128 [-0.241, -0.029] |
| Fuel Subsidy × SES ² | 0.024 [-0.044, 0.089] | | |
| VAT | 0.944 [0.231, 1.559] | 0.051 [-0.363, 0.418] | 0.149 [-0.159, 0.421] |
| VAT × SES | -0.396 [-0.828, 0.041] | -0.022 [-0.166, 0.142] | -0.088 [-0.196, 0.041] |
| VAT × SES ² | 0.008 [-0.071, 0.087] | | |
| Govt. Revenue | 0.950 [0.288, 1.679] | 0.558 [0.068, 1.053] | 0.391 [0.091, 0.702] |
| Govt. Revenue × SES | -0.582 [-1.052, -0.053] | -0.274 [-0.483, -0.073] | -0.123 [-0.246, 0.002] |
| Govt. Revenue × SES ² | 0.038 [-0.068, 0.137] | | |
| Num. Obs. | 8098 | 8901 | 8958 |
| R ² | 0.067 | 0.011 | 0.024 |
| R ² Marg. | 0.036 | 0.003 | 0.019 |
| ELPD | -21551.9 | -3829.7 | -9774.9 |
| ELPD s.e. | 35.0 | 58.0 | 80.0 |
| LOO-IC | 43103.8 | 7659.4 | 19549.8 |
| LOO-IC s.e. | 70.0 | 115.9 | 160.0 |
| RMSE | 3.44 | 0.36 | |

^a Table shows coefficients from Bayesian regression models (OLS for Quadratic, logit for Democracy, and ordered logit specifications for Corruption models) with default uninformative priors. Confidence intervals in brackets are the 5 percent to 95 percent posterior quantiles. RMSE is root mean squared error of the predicted values, ELPD is the expected log predictive density of the predicted values, and LOO-IC is the leave-one-out information criterion for measuring the statistical information contained in the predicted values. The addition of “se” in the table indicates the standard error of these summary statistics.

at a specific part of the income distribution given that only the SES term has a strong relationship with the outcome. Rather, seemingly, as respondents become linearly wealthier, they also become more likely to

avoid protesting after receiving the treatment. In other words, the very wealthy have an even more adverse reaction to the treatment than does the upper-middle class.

The next two columns in Table 3 report models of two survey questions that were posttreatment but that were not preregistered. The democracy column in Table 3 reports a regression of the treatment \times SES interaction on a question asking respondents whether they would support democracy even if it meant opposing the regime. For this question, we see similar treatment heterogeneity for the fuel subsidy and government revenue treatments, with a roughly null relationship for the VAT treatment. Column “corruption” in Table 3 reports a regression of the treatment \times SES interaction on a question asking respondents whether they would support holding businesspeople in the dictator’s regime accountable for corruption. For this specification, we see similar SES moderation for the government revenue and fuel subsidy treatments, and again a somewhat weaker relationship for the VAT treatment.

The overall weaker effects of the treatment on these outcomes are not surprising, as much less variation occurs for these questions because more than 80 percent of respondents agreed with both questions. Yet even with these high floors of support, we still see evidence that the treatment moved the opinions of the wealthy and the poor in opposite directions. Furthermore, yet again we do not see any evidence of SES moderation moving in the opposite direction. These models provide further support for our treatment’s effect of moving the wealthy’s overall assessments of the Hirak protest movement, not only a specific facet of it.

To summarize these additional analyses, the wealthy were in favor of wholesale institutional change and were supportive of the Hirak, but when our treatment made them aware of the possible distributional effects of these changes, their enthusiasm dampened considerably. It would seem logical that the wealthy would react more adversely than the poor to information suggesting that their rentier benefits were at risk.

CONCLUSION

Our granular data combined with a causally identified research design both answers questions and raises them. We can show that increasing Algerians’ information about the extent of the rentier state relative to neighboring countries does improve their perception of regime performance in terms of public goods provision. As such, these experimental results suggest that parts of the rentier theory concerning the

bargain that citizens make with an authoritarian regime do have merit. However, we find that the treatment had no discernible effect in the aggregate on important accountability measures, such as joining protest movements, suggesting that the rentier theory's mechanisms do not necessarily produce their anticipated effects.

At the same time, treatment heterogeneity across the class divide suggests that in times of popular mobilization, perceptions of the rentier state are far from uniform. Our treatment seems to have produced a backlash effect among poor Algerians, substantially increasing their reported willingness to engage in protest activity after being informed about the extent of the resources held by the rentier state.

These results point to the inclusivity of the rentier state as a critical variable underpinning the state's effectiveness at containing protest. Even if the state remains in regional perspective a credible provider of public goods, the relative share of public goods provision for the poor versus the rich may still be an issue of contention. If Algerians conclude that the rentier state is biased in favor of the rich and powerful, overcoming that grievance solely through general reminders of the extent of redistribution is difficult. At the same time, if the wealthy perceive that a democratic turn would improve their lives and do not fear a loss of their privileged economic position posttransition, they may join in efforts to undermine the regime. These dilemmas illustrate the difficulties facing rulers who encounter limitations on their ability to use rentier resources to prevent counter-regime mobilization.

SUPPLEMENTARY MATERIAL

Supplementary material for this article can be found at <http://muse.jhu.edu/resolve/238>.

DATA

Replication files for this article can be found at <https://doi.org/10.7910/DVN/NG6HFA>.

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AUTHORS

ROBERT KUBINEC is an assistant professor of political science at New York University, Abu Dhabi. He can be reached at rmk7@nyu.edu.

HELEN V. MILNER is the B.C. Forbes Professor of Politics and International Affairs at Princeton University and the director of the Niehaus Center for Globalization and Governance at Princeton's School of Public and International Affairs. She can be reached at hmilner@princeton.edu.

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