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Revisiting the role of process incentives as a determinant of university students' protest

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Introduction

The rise in the cause-oriented repertoires in political participation amongst young people, exemplified by the mobilizations within the anti-globalization or global justice movement, has seen the widespread engagement of university students in, what is known as, costly modes of participation, such as demonstrations, strikes, and acts of political violence (Della Porta, 2008). These modes of participation have become so widespread, that have rendered the older distinction between 'conventional' and 'protest' politics as irrelevant (Bean, 1991; Norris, 2007, p.639). Even though student movements can hardly be considered as a homogeneous phenomenon, one of the central themes of research has been to explain why students participate in such protest activities. Ever since the experience of the civil rights movement, the demonstrations during the Vietnam War and the events in Europe that culminated with Paris 68, social scientists have been investigating the correlates of university students' protest (for a review of the early literature see Levin and Spiegel, 1977).

Empirically, the study of protest activity poses a serious challenge on conventional sampling methods as it has been generally difficult for researchers to survey individuals

within actual locations of protest. As a consequence, researchers have often resorted in proxies such as the propensity to protest (e.g. Heath, 2008; Muller, Dietz and Finkel, 1991; Psacharopoulos and Kazamias, 1980) or interaction variables between past protest and future propensity to protest (e.g. Bean, 1991; Finkel, Muller and Opp, 1989; Muller and Opp, 1986). However, as Finkel and Muller (1998, p.38) observed, the empirical evidence shows that ‘the relationship between behavioural intentions and actual behaviour is weak.’ We address this problem by collecting our own data, coming from a context of actual case of university student activism in Greece during 2006 and 2007. In so doing, we have assembled a sample containing a large portion of participants with important variation in their degree of protest involvement. Therefore, we are in position to examine the role of process incentives through survey data relating to a real case of student protest (see also Möller et al. 2009). In this way, we solve the small-*n* problem of conventional survey studies, without resorting to poor proxies of actual protest activity.

Theoretically, our paper focusses on the role of process incentives (i.e. incentives that are related to the act of participation) by evaluating their role in students’ decisions to take part in protest activities, in two important ways. First, we explore the unconditional effect of the expected gains from the act of protesting itself in students’ decision to take part in protest activities. We do that by focusing on actual participation since our data come from a real case of a protest movement. Second and much more importantly, we examine the extent to which process incentives qualify the weight attached to the primary elements of our empirical model which is based on a ‘wide’ view of rational choice theory (Finkel, 2008; Opp, 1999) which includes the effects of social norms, social identity, and entertainment. More specifically, we ask whether students who anticipate benefits stemming from the action itself perceive the acquisition of the public good as the most important factor in their decision making process, or if, conversely, process incentives

make concerns such as the perceived efficacy of one's marginal involvement or the costs associated with this action less important. The importance of process incentives becomes evident when we show that they constitute a first stage precondition for the further elaboration of other potential determinants of protest activity. It is not only that the attributes that are associated with the process of protesting makes participation more likely. Rather, the perception that the process of protesting will yield considerable benefits becomes a precondition for thinking about other parameters relating to protesting. Unless there is anticipation about perceived benefits stemming from the act itself, other seemingly important concerns become less important.

Student protest, rational choice and process incentives

Seen as a mode of political participation, protest activity has often been studied within the framework of rational choice theory (Opp, 2009, pp.45-126). One of the crucial problems of rational choice theory in trying to explain protest activity is the presence of free-riders. Because the protesters' goal can be seen as a public good which will become available to all regardless of participation status, individuals have a tendency to free-ride. Collective action can be thereby seen as a situation akin to the 'prisoner's dilemma' in which each individual's self-interested rational behaviour will lead to a collective non-optimal result (Hardin, 1982, pp.25-28), in this case reflected by the decrease in the probability of obtaining the common goal. This makes protest paradoxical from a pure rational choice theory perspective where individuals make decisions by weighting the cost of participation against the potential benefits. Consequently, it has been typically difficult for rational choice theorists to account for costly modes of political participation based only on a cost-benefit equation.

Given this problem with pure rational choice models of protest behaviour, the focus of many studies has shifted to investigating and proposing different ways in which the problem of free-riding can be surpassed (e.g. Kalyvas and Kocher; 2007; Leeson, 2010; Lichbach, 1995; Lichbach, 1996). Since Olson's (1965) seminal work on the collective action problem, the key element for explaining the seeming paradox of collective action has been the use of selective incentives. Selective incentives are benefits which, in contrast to the public good whose acquisition constitutes the goal of the participants, are not disseminated to all interested members, but remain private and are only shared among participants. In explaining collective action, Olson (1965, p.51) referred to incentives which 'will stimulate a rational individual in a latent group to act in a group-oriented way.' As mentioned, these incentives are selective inasmuch they remain private, distributed only to the participants of collective action. Selective incentives can be 'negative' or 'positive' typically taking different forms as punishments or rewards respectively (Lichbach 1995, pp.216-244; Oliver 1980; Olson 1965). In a protest activity context, negative selective incentives in political participation include compulsory membership or the threat of violence against non-participants, whereas positive selective incentives often include financial or office rewards.

Not all selective incentives have to be based on economic or strictly material underpinnings, however. As Olson (1965, p.60) remarked, 'people are sometimes also motivated by the desire to win prestige, respect, friendship, and other social and psychological objectives.' In this respect, researchers have theorized the role of family, friends, and 'significant others' in shaping the perceptions of benefit and cost through social norms, and other non-material psychological gains. Personal contacts and particular contextual influences might foster mobilization through a process of social networking. People might not hold strong feelings about the goals of the protesters but will still take

part because they want to conform to the general trend within their personal environment, or to avoid being ostracized (Elster, 1989b, p.101; Olson, 1965, pp.60-62).

In social movements non-material selective incentives often involve psychological gains stemming from the very act of participation. As Hardin (1982, p.123) argued, 'the desire to participate in experiences of one's generation might lead one to participate in an action or movement whose purposes one does not support.' In the case of protest activities, selective incentives often relate to the process of protesting itself. In this sense, being a 'student activist' becomes a 'prized social identity' which supplies the 'selective incentives to participate' (Polletta, 1998, p.143; Polletta and Jasper, 2001; 290). Other explanations focus, on the role of organizations and social networks in fostering collective action (Andrews and Biggs, 2006). An important constituent of these explanations is the degree of solidarity (Wilson, 1973, p.39-45), in the sense of 'positive feelings toward others can lead to action on behalf of that group or category' (Jasper, 1998, p.406). Identity and solidarity, however, are interrelated as they both refer to the movement itself and to the pleasures associated with the act of protesting (Jasper, 1998, p.417).

Another important but rather understudied kind of process incentives is entertainment. Tullock (1971) was the first to include an entertainment indicator in the calculus of participating in rebellion. According to this reasoning, 'free riders' can be transformed to 'joy riders' when collective action attains an entertaining character (Lichbach, 1996, p.109). Entertainment can be therefore considered as a process incentive since it is directly related to the very process of protest activity. Tullock (1971, p.92) conceded that entertainment would not be 'an important variable in serious revolutionary or counter-revolutionary activity,' but nevertheless admitted that it would be a more important determinant of student protest. Political protest often assumes 'aspects of a festival' (Elster, 1989a, p.45)

and historians have researched how humour and music relate to social protest (see Eyerman, 2002; Teune, 2007). Entertaining activities such as concerts and parties are commonly associated with student protest activity, as exemplified by numerous cases in the 1960s where ‘folksingers rewarded anti-war demonstrators by singing at protest rallies’ (Oliver, 1980, p.1356). Nevertheless, the entertainment value of protest need not be limited in such activities. The process of being engaged in protesting allows students to meet like-minded people, fraternize and get accosted with strangers (Oberschall, 1993, p.12). Students often get ‘excited by the struggle and value the opportunity to match wits with their opponents’ (Lichbach, 1996, p.109), whereas social and political protest gives them a general sense of empowerment. As Lieberman (2004, p.15) summarized the feelings of the 1960s Midwest American student protesters: ‘they were taking control of their lives—living out the ideal of participatory democracy—and having fun doing it.’

Our theoretical framework starts with the classic cost-benefit equation of rational choice theory (Opp, 2009, pp.45-49) and expands it by including the social and psychological process incentives mentioned above. The degree to which such incentives can be incorporated in a ‘wide’ rational choice model without ‘adulterating’ rational choice theory has been discussed before and the answer has been positive in both broad theoretical terms (Chong, 1995, pp.53-56; Opp, 1999) and in more specific research contexts (Finkel, 2008; Goldfarb and Sigelman, 2010, pp.291-293). Moreover, past research has included such process incentives in systematic accounts of protest activity or the propensity to protest (Finkel and Muller, 1998; Klandermans, 1984; Muller and Opp, 1986; Muller, Dietz and Finkel, 1991) and political participation in general (Bäck, Teorell and Westholm, 2011; Finkel and Opp, 1991; Whiteley 1995) and has concluded that they are important in understanding protest activity and political participation. However, the inclusion of indicators representing process incentives has thus far served either as a control to account

for unobserved heterogeneity in examining the impact of other theoretically interesting variables, or as an attempt to evaluate its direct effect on the decision to participate in rebellions or violent protest.

Here, we take this existing evidence as our departure point. Unlike the aforementioned literature, we focus on the indirect effect of process incentives and explore their influence on the importance attributed either to cost-benefit considerations or to attitudinal characteristics that might lead to the decision to get involved into protest activities. Our contribution therefore lies in demonstrating the way in which process incentives interact with the core elements of rational choice theory in explaining protest activity. Accordingly, we do not simply argue that identity, solidarity and entertainment are significant predictors of actual participation. Our argument is more compelling. We argue that such process incentives work as first stage preconditions for participating. Other considerations become much less important in lack of these aspects. In other words, perceiving such benefits from the process of protest activity is a precondition for considering all other parameters entailed into this process. Further concerns, such as the perceived efficacy or the importance of obtaining the public good are important, but they are so only for those who believe that taking up this task is going to deliver some process benefits.

We test this claim by examining a recent case of university student protest in Greece. We believe that university students in Greece offer an interesting case to study since, historically, all the attempts of conservative governments to advance reforms in higher education (1979, 1991, and 2006) have been met by students with a dynamic pattern of protest: demonstrations, marches, rallies, sit-ins and, most importantly, campus building occupations. Most recently, protests involving young people in Greece have turned into large scale riots (see Hugh-Jones, Katsanidou and Riener, 2011), so given the longevity,

persistence and broad appeal of costly and high risk protest tactics, studying university students in Greece provides a fertile context for using a rational choice theory framework. Nevertheless, with the exception of Psacharopoulos and Kazamias (1980) who investigated the correlates of student activism in Greece based on a survey conducted in 1977, empirical research using data from Greece has been limited.

Method and data

Our data come from a survey in Greece conducted amidst a series of university student protests. In April 2006, the minister of education in Greece decided to move forward with the drafting of a new bill for reform in higher education. Several of the proposed reforms, however, proved to be controversial among the higher education community. In particular, students felt that the proposed reforms would lead to the, widely unpopular among a large part of the Greek public, commercialization of higher education (see Psacharopoulos, 2003). Equally controversial was the proposal for limiting the time allowed for the completion of degrees (and thus expelling any students that fail to complete their degrees within the proposed time-limits), as well as the change in the law which bans police from entering university grounds. This last point, in particular, was seen as a source of concern regarding academic freedom. Beginning in May 2006, Greek university students began to mobilize and responded with a variety of protest tactics, which included rallies, strikes and marches aimed at preventing the Government from submitting the bill to the Parliament. Student mobilization soon escalated to clashes with the riot police and sit-ins which led to an effective occupation of the buildings of 429 (out of 454) departments in higher education institutions (*Chronicle of Higher Education* 2007, March 23). The Government decided to postpone the submission of the bill for September, and the crisis was reduced until the next academic year. In October 2006, however, when the issue was brought back,

students resumed their protesting in a second wave of rallies and building occupations (albeit to a smaller scale) that lasted until November. The bill was finally put to vote in March of the following year amidst a third wave of student protesting.

Our data come from a survey that was implemented during the aforementioned turbulent period of university students' activism. To be able to test our hypotheses, we constructed a questionnaire that was administered among university students. Although we tried to broaden our sampling frame so that it would be as inclusive (and thus as representative) as possible, we were forced to exclude a few small universities located in relatively remote areas. As the number of students in those institutions account for less than one tenth of the total student population in Greece, this could only marginally affect the general pattern. For practical reasons, we implemented two different sampling strategies.¹

First, we chose a two-stage stratification system using classroom as the primary sampling unit and a random sample of individuals drawn within each classroom. A problem with this sampling strategy could be that given that attendance to the lectures is not compulsory, there might be a systematic under-representation of a particular group of students which may well differ in its participation level from those regularly attended

¹ A relatively recent development in the collection of information about students' protest activity is what is known as 'protest surveys', in which participants are interviewed following a selection procedure that bears resemblance to the sampling methods employed exit-poll surveys. These surveys take place at protest events, i.e. while subjects are taking part in the protest (e.g. Möller et al. 2009). Although this new approach has provided good opportunities to study the origins and the mechanisms driving protest activity, we believe that our dual approach is more suitable in our setting (see also Klandermans and Smith, 2002, pp.14-16; Walgrave and Verhulst, 2011). The reason is that we gain more variation in our dependent variable of interest, namely protest involvement. Administering the questionnaire only to students who participated in occupations and marches would seriously shrink the variance of our outcome variables and would thus make it very difficult to examine the role of various potential predictors of student participation.

lectures during the mobilization period. To address this problem we also engaged in snowball sampling. Given that in high-cost protest activities, participation is skewed towards modes of participation which do not assume much cost on behalf of the participant, we needed to engage in unconventional sampling procedures which would ensure that students with a high level of participation in protests would be also present in our sample. In this sense, students participating in high cost protest activities qualify as a 'hidden-population' for which snowball sampling (asking a participant to direct us to other participants) is an appropriate technique (see Spreen, 1992). Although technically better than simple convenience sampling, snowball sampling is biased towards the more cooperative participants and referrals with large network links (Erickson, 1979, p.299). In order to overcome these biases we engaged in a special method of snowball sampling, known as respondent-driven sampling (see Heckathorn, 1997). Respondent-driven sampling is robust to the selection mechanism of the initial participants due to the introduction of a dual incentives system. Respondents receive a reward for their own participation as well as for each participant they recruit. Using university students not only as referrals but also as effective recruiters enabled us to use their social influence to induce and to effectively monitor the respondents' compliance (Heckathorn, 1997, p.177). Moreover, peer pressure ensured that the offer of non-material rewards such as the ones employed in our survey would be effective in securing compliance (see Heckathorn, 1997, pp.177-179).

Mean sample differences between respondents from the two samples proved to be non-significant, with respect to demographics (year of study and gender) and other characteristics regarding their relationship with the university (student union membership; field of studies; evaluations regarding the law proposal). To be sure, respondent-driven participants were significantly more active in protest activities than

class-based respondents (mean participation 5.05 and 3.82 respectively). This was an anticipated outcome since one of the reasons respondent-driven sampling was introduced was to specifically target student activists. The final sample size was 505, with 364 participants from class-room sampling and 151 participants from respondent-driven sampling.

Model Specification

The questionnaire focused on the impact of personal (egocentric) and general (sociotropic) benefit, cost, and on selective incentives, distinguishing between social norms and process incentives. Following previous research, we model the core cost-benefit equation by an interaction between the public good and the perceived probability that individual participation will be important for the acquisition of this good. Perceived cost is then subtracted from the sum of the two perceived benefit products. We thus use the classical rational choice formula, $U = pB - C$, as our departure point: U denotes the utility from engaging into some collective action, B stands for the utility obtained from acquiring the public good, weighted by the probability (p) that one's own contribution will be decisive for the final outcome. The perceived cost associated with this collective action is then subtracted from the final product. We further qualify this expression by distinguishing between egocentric and sociotropic concerns with regard to the acquisition of the public good and by including another term S , which stands for various types of selective incentives, i.e. benefits that one can enjoy of only as a result of taking part in the collective action: $U = pB - C + S$. The following set of equations provide a generic representation of the models used to fit the data.

$$\text{Participation}_{ij} = \alpha + \omega_j + (\beta_1 + \beta_2) p_{ij} (PB_{ij} + GB_{ij}) - \beta_3 PC_{ij} \quad (1)$$

$$= \alpha + \omega_j + \sum_{k=1}^2 \gamma_k SN_{ij} \quad (2)$$

$$= \alpha + \omega_j + \delta PI_{ij} \quad (3)$$

$$+ \sum_{\lambda=1}^8 \phi_{\lambda} IC_{ij} + \sum_{\mu=1}^5 \tau_{\mu} CC_{ij} + e_i$$

where:

p is the perceived probability that one's own participation will significantly aid the movement;

PB is a measure of personal (egocentric) benefit from abolishing the law;

GB is a measure of general (sociotropic) benefit from abolishing the law;

PC is a composite measure of perceived cost from taking part in the students' movement;

SN stands for Social Norms, measured here, as will be further elaborated in the next paragraphs, with two indicators capturing the opinion of important others about the draft bill;

PI stands for Process Incentives;

IC and CC encapsulate individual- and context-level control variables;

e denotes the random i.i.d. disturbance term and $\alpha, \omega, \beta_1, \beta_2, \beta_3, \gamma, \delta, \varphi,$ and τ are constants to be estimated from the data.

The double subscript denotes individual i from faculty j , hence a series of two-level models with faculty-specific random intercepts (ω_j) are estimated.

We briefly present the operationalization of all variables shown in equations (1) to (3). The online appendix offers more details about the measurement strategy followed in the analysis. The dependent variable comprises of several questions about the individual's level of participation during the period of occupations. These questions refer to whether the students participated and voted in the general assemblies of the faculty, took part in

marches and demonstrations, and the extent to which students participated in the occupation within their faculty or university. The resulting index, which has been recoded so that it ranges between 0 and 10, seems to perform quite well in terms of criterion validity (Carmines and Zeller, 1979, pp.17-20). The survey included a question which asked students to evaluate their personal degree of participation on a 0 to 10 scale (ranging from no active involvement to very active involvement). The correlation between our dependent variable and this question is .822. We are thus confident that our set of factual questions about individuals' level of involvement in the movement is sufficient to summarize their overall participation level.²

The variable denoting personal benefit is captured through a single question about whether the respondent believed that the bill would affect his or her own studies. General benefit is measured by an item about whether the student was motivated by the fact that the bill's proposals would affect other students as well. Personal efficacy is measured through a scale consisting of three binary indicators about the individual's perception of the impact of his or her contribution on students' movement (see Finkel, Muller and Opp, 1989, p.893; Finkel and Muller, 1998, p.42; Muller and Opp, 1986, p.478; Opp, 1990, p.221; Whiteley, 1995, p.229). The scale was recoded so as to range from 0 to 1, reflecting

² At this point we need to emphasize that when this 0 to 10 scale is used as the dependent variable, all the substantive results presented below remain intact. None of the conclusions drawn in this paper is qualified by employing this scale as the dependent variable. We opt for our composite measure instead of using the self-reported scale of protest activity, because we believe that our results will be more reliable and probably also more conservative if we base our inference on factual questions about one's activities in the movement rather than on a more general measure that allows for more inter-individual heterogeneity, as to how different people perceive the scale. People are less likely to misreport their true level of participation when they are given specific cues, such as voting in the assembly, visiting the university, or helping in the occupation of their faculty.

the theoretical perception that the acquisition of the collective good needs to be weighted by the perceived probability of significant marginal contribution.

Cost is measured with three items referring to three different side-effects of getting involved in protest activities: losing time from one's personal activities; the possibility of attaining the label of 'trouble-maker'; and the delay in completing one's degree course (see Finkel and Muller, 1998, p.42; Klandermans, 1984, p.590; Muller and Opp, 1986, p.479; Muller, Dietz and Finkel, 1991, p.1274; Oliver, 1984, pp.803-804; Whiteley, 1995, p.229).

Social norms (*SN*) are captured through two sets of items (see Klandermans, 1984, p.590; Muller and Opp, 1986, pp.478-479; Muller, Dietz and Finkel, 1991, p.1274; Opp, 1990, p.221; Whiteley, 1995, p.230). First, participants were asked about the opinion of 'significant others' towards protest activity and how important was this opinion for them. The same series of questions was repeated regarding the respondents' family. Each of the two resulting variables were created by taking the product of these two survey items (opinion of others*importance of opinion of others to individuals).

The variable of process incentives (*PI*) is constructed through a scale of three items intended to measure entertainment, solidarity and identity. As has been pointed out before (Aguilar et al. 2010, p.263; Opp, 2009, pp.217-219), identity is conceptually ambiguous as sociologists and economists have come up with multiple, often conflicting, definitions. As it is not possible to give a full discussion here, we refer to identity according to how it has been operationalized within the wide rational choice framework, namely as the need to relate with like-minded people. The questions we therefore use refer to one's evaluation about how entertaining and comfortable it might be to take part in such kind of rebellious actions and about the opportunity to meet like-minded people (see Finkel and Muller,

1998, p.42; Muller and Opp, 1986, p.478; Whiteley, 1995, p.230). Although these questions might not fully capture the concepts of entertainment, solidarity and identity as they have been defined by various researchers, they nevertheless give us an index indicator regarding the variance of process incentives among the surveyed students.

Given the increased politicization within Greek universities (where student unions are directly associated with and funded by the major political parties) and the partisan character of the opposition to the bill (proposed by a right-wing government), we statistically control for potential factors which might account for the level of participation while sharing variance with the parameters of interest. Starting with the individual-level covariates (*IC*), we control for left-right self-placement (0-10 scale, see Whiteley, 1995, p.230), to account for the fact that student mobilization was mainly channelled through student unions which are politically opposed to the right-wing government. The expectation is that the more people locate themselves to the left of the ideological continuum, the more likely they are to participate in the protest activities (see Clarke and Egan, 1972, pp.507-508). A similar scale is also used to measure students' assessment of the bill. Since we are not interested in the bill *per se* but rather on the sources of protest activity, it is essential to control for the possibility that some people did not take part in the whole movement simply because they were in favour of the bill (see Opp, 1990, p.221). A variable measuring students' value priorities is also added, assuming that protest potential is higher among the portion of students characterized by postmaterialist concerns (see Kim, 1991). We also include gender (see Sherkat and Blocker, 1994) and the starting year of studies with the assumption being that participation should be more costly for students closer to graduate.

Last but not least, we add an index variable in order to control for the possibility that it was

not abolishing the bill that motivated student participation but rather an inherent feeling of discontent stemming from students' dissatisfaction with the quality of studies offered by the Greek universities. The variable consists of three items. The first one asked about whether the proposed bill was a part of a more general plan aiming at abolishing the public and free character of higher education in Greece. The other two refer to student's evaluations about the quality of studies offered in their university and the extent to which things have improved or worsened during the last few years. The resulting variable therefore controls for student grievances measured as dissatisfaction with policy and public goods (see Finkel, Muller and Opp, 1989, p.892; Finkel and Muller, 1998, p.41; Oliver, 1984, p.605; Opp, 1990, p.221; Opp, 1988). We use grievances (pessimism) as a control and not as separate explanatory variable based on the observation that grievances offer little explanatory power compared to the rational choice models (Muller, Dietz and Finkel, 1991) as they remain relatively stable over time (see Jenkins, 1983, p.530).³

As contextual controls we employ two indicators. We included two sets of dummies, one to distinguish among different types of areas of study (humanities versus sciences) and the other to control for the different geographic location of the universities that were included in the analysis (see van Dyke, 1998), distinguishing therefore between faculties located in

³ Moreover, grievances cannot be readily incorporated either as part of the core rational choice model or as part of process incentives. They refer to a latent attitude towards policy change. Thus, although they represent preferences for public goods that are not sufficiently provided, they remain agnostic about the direction of policy change. Accordingly, whereas both personal and collective benefits have been operationalized so that they adhere to the idea that the public good for the protesters consists of abolishing the draft bill, the measurement of pessimism relates to a more generic reaction against reforms in the university, accompanied by a low level of satisfaction with the level of education offered. In other words, when it comes to grievances, the public good is defined more broadly as good level of university education. In our study however, protest is driven by the opposition to a specific government plan for reform in higher education.

Athens and Thessaloniki—by far the two largest cities in the country—and small towns. Finally, we included a dummy controlling for different sampling methods and another to control for respondents from the Faculty of Humanities of the University of Western Macedonia for reasons that will become apparent in the following section.

Descriptive statistics and diagnostics

[Table 1 about here]

The first two columns of Table 1 present the number and percentage respectively of observations in each faculty or university. Two points need to be made. First, it might seem strange that sometimes we group the cases within a university as a whole, and other times within faculties. The reason for that is that we try to follow the administrative and political structure within each context. Universities with very large number of faculties have separate electoral and administrative procedures per faculty and therefore their students communicate with fellows from other faculties no more than they do with students from different institutions. On the other hand, there are various relatively small universities which although have more than one faculties, share common participation processes and have the same administrative structure. More importantly, students cohabit in the same buildings and thus they receive similar contextual influences.

The second point relates to the mean level of participation in each second-level unit of analysis, as shown in the last column of Table 1. Entries into brackets denote the 95 bootstrapped confidence intervals (bootstraps taken within faculty, 100 replications) As it is seen, although there is some variation both in the mean levels and in the degree of uncertainty associated with the point estimates (according to the number of cases in each

unit), there is only one case that stands out and this is the Faculty of Humanities from the University of Western Macedonia, where mean participation appears to be much higher than average. This stark difference may simply be the consequence of respondent-driven sampling, which necessarily is not distributed uniformly among faculties. Again, to ensure that results are driven by this case, we include a dummy denoting the observations from this particular faculty.

To account for the nested pattern of the data generation process, which might lead to faculty-level intra-correlation among respondents, we estimate the parameters using a two-level model. Generalized linear squares estimators are robust to the presence of heteroskedasticity and permit the estimation of various patterns of within-cluster correlation. Unavoidably, variation in the mean response is an indication of variability in the variance of the response variable as well. That this is the case here is confirmed by a simple test of heteroskedasticity, which easily rejects the null of constant variance (chi-square (1) from Breusch and Pagan test: 7.73). The presence of missing data is addressed through multiple imputation, using Amelia II (King et al. 2001). Five complete datasets are constructed and accordingly, the coefficients presented in the following section are the average values of the results produced with each dataset. Standard errors consist of the average figures from these separate analyses plus the variability of the coefficients across these datasets.⁴

⁴ The low number of second-level units (12) as well as the fact that these faculties have not been chosen completely at random may raise concerns about whether the assumptions embedded in the multi-level model hold (Maas and Hox, 2005). We believe that potential peer effects within faculties, departments or universities should be addressed in the estimation procedure. We opt for a multi-level model for two reasons. First, it is a more appropriate technique to model the two-level structure of our data generation process. Second, when analysing the impact of level two variables across different contextual units, a multilevel regression is a better choice for technical reasons such as avoiding the truncation of the variance

Results

With all that in mind, we proceed to the findings. Table 2 shows the impact of all key factors on individual protest activity. Column 1 includes only the individual-level and faculty-level control variables. Ideology emerges as a key predictor of protest activity. A point move towards the right decreases the likelihood of taking part in the movement by almost .4 points in a 0-10 scale. This effect declines by half when all constituent parts of the extended rational choice model are included in an encompassing model, as shown in the last column of Table 2. The direct link between ideology and activism confirms the logic that led to the inclusion of this variable, namely that politics is an inherent element in Greek higher education and unavoidably it marks attitudes towards issues surrounding the university. Value priorities also seem to be a key distinguishing factor among participants and non-participants. This is hardly surprising given that, as the leading student activists made it clear, protesting aspired to the ideas and principles of the anti-globalization movement, which implied that reaction against the bill, should coincide with a post-modern thinking about political and social needs.

[Table 2 about here]

The results are far more ambiguous about respondents' evaluations of the draft bill. Although the effects point always to the right direction, they fail to achieve statistical significance when process incentives are included in the model. We come back to this

and the calculation of biased standard errors and inflated Type I errors (Snijders and Bosker, 1999; Steenbergen and Jones, 2002). Having said that, using OLS regressions with faculty-clustered standard errors produces almost identical estimates, leaving our substantive conclusions unchanged. Later in the paper, we check the sensitivity of our results when single second-level units are dropped from the analysis.

finding when we discuss the indirect impact of these incentives in students' more general considerations about their participation in protest activity. Grievances are also important, denoting that taking part in protest activity might also be the result of a more generic and persistent lack of trust towards political attempts to reform the existing system of higher education in Greece. That said, most of this effect evaporates in the encompassing model, combining equation (1) to (3), as shown in the last column of the Table.

Furthermore, the dummy denoting the sampling method from which the observations are taken performs as was expected: the respondent-driven sampling students are significantly more likely to participate more forcefully to the protests than students sampled from the classrooms. That said, this gap gradually wears out, as we move from equation 1 to equation 3 and even to fails achieve statistical significance at conventional levels in the last column of the table. The study discipline and location characteristics seem to have no statistically significant effect on the dependent variable, whereas for the case of gender and year of studies the evidence is more ambiguous: there also seems to be a remarkable gender gap that retains in magnitude despite the inclusion of various other covariates. With regard to the year of studies, of the signs and the relatively larger z-values for the last two seem to suggest that male students and those who are in the beginning of their studies are more likely to take part in protest activity, although the results fail, in almost all cases, to attain statistical significance. Last but not least, the high mean participation level of the faculty of Humanities from the University of Western Macedonia loses its significance, when process incentives are added in the estimation (columns 3 and 5). Finally, as could be expected given the partisan connotations of student union membership in the Greek university, mobilization forces have also played an important role in this movement: being already part of a students' union is likely to induce participation, a relationship that does not, however, remain robust when a fully-specified model is estimated.

We now come to the core rational choice model. As shown in the second column of Table 2, which displays the results from the cost-benefit equation, all three variables seem to exert an important influence in students' protest activity. Seen either in sociotropic or in egocentric terms, the benefit from achieving the collective goal, weighted by the probability of making an effective contribution provides a vital motivation in order to participate in protest activity. Furthermore, concerns about the possibility that other students will have to incur the consequences of the law seem to be more important than fears about one's own future in the university under the new regulations. This is already a first indication that the core rational choice model needs to be complemented by other influences (Finkel, 2008; Opp, 1999). The third column points further to this argument, since it shows that social sanctions, at least as evoked by the close family environment, contribute to our explanation of the motives of protest participation. Rather surprisingly, 'significant others' have not been decisive in the decision individuals took regarding the most costly modes of protesting. Having said that, it is still informative to know that, when engaging in activities that do not meet parental approval, participation is, on average, limited to lower levels of protest activity.

The next column in Table 2 presents the results for the impact of process incentives. The magnitude of the effects is remarkable, indicating that a unit-increase in a 0-5 point scale increases the amount of protest activity by almost one point in a 0-10 scale. Taking part in social protest has always had an entertaining value, as Tullock (1971) first pointed out. The significant role of process incentives has also been confirmed both by systematic survey-based studies (Finkel and Muller, 1998; Klandermans, 1984; Muller and Opp, 1986; Muller, Dietz and Finkel, 1991) and anecdotal evidence drawn from historical accounts (e.g. Chong, 1991; Lieberman, 2004; Oberschall, 1993; Teune, 2007). It seems that Greek

students are no exception to that. Among the competing models, all model fit statistics shown in the bottom of the table indicate that the one performing best is the model containing the process incentives variable. To be sure, the LR test is not the appropriate measure when non-nested models are compared. Nevertheless, when each model is compared to the empty model (which is always nested), the difference between the two maximized restricted log likelihoods is larger for the model containing process incentives. Both information criteria which are shown in the last rows of Table 2 and account for the different number of parameters estimated in each model by introducing a penalty for each additional parameter to be estimated (BIC does that more than AIC) suggest that the ‘process incentives’ model fits the data best. In fact, when this important indicator is included, the impact of other variables, such as ‘cost’ and evaluations towards the law becomes statistically indistinguishable from zero.

Moreover, the inclusion of this term has two important implications in the other parameters of the model. First, with the exception of ‘year’ and ‘gender’ all other covariates lose a large part of their explanatory power. All coefficients attached to the control variables in the first column decrease substantially when the composite process incentives are included in the equation. Second, given that the inclusion of such a good predictor of protest activity captures a significant part of the unexplained variance, there is less non-systematic error left in the dependent variable. This is why the standard errors of all control variables become also much smaller than in the first column. This implies that the addition of process incentives makes the estimates for the effect of the other variables more precise (Angrist and Pischke, 2009, pp.23-24).

[Figure 1 about here]

Before we move to the mediating effect of process incentives on protest activity, we need to examine whether our results are driven by a particular second-level unit. The lower part of Table 2 shows the level of inter-faculty variation as a percentage of the total variation in the dependent variable. Again, including process incentives seems to account for a significant part of this variation. Figure 1 displays the point estimates and their associated 95% confidence intervals for the three key factors of the three models tested in Table 1: sociotropic benefits (core rational choice); family opinion (social norms); and the process incentives measure. The numeration shown in the vertical axis follows the numeration of the first column of Table 1. This means that from each of these analyses respondents from the faculty that is denoted in the y-axis have been dropped. For instance, the results when students from the University of Macedonia, the second-level unit with the highest number of respondents, are excluded from the analysis appear under the label '5' in the y-axis. All estimates are sorted according to the magnitude of the point estimates, i.e. from lower to higher coefficients. As is seen, there is hardly any variation in the effects and with the slight exception of process incentives, the effect of which increases quite remarkably when students from the University of Macedonia are excluded, all other estimates are non-distinguishable from those reported in Table 2. To facilitate the comparison, the graphs include also the coefficients and the confidence intervals from the analysis that includes all faculties. As is shown, the overall effects (denoted by the label 'All' in the y-axis) are not affected by exclusion of single second-level units. There is no instance in which either of the three terms register a significant increase or decrease as a result of dropping a single faculty from the estimation.

The Indirect Effects of Process Incentives

The next and most important step in the analysis involves the exploration of the way in

which process incentives might qualify the original cost-benefit decision-making process. The potential gains acquired by the act of participation enter in the individual's expected utility function as an additive exogenous factor. Given its hypothesized positive effect, this term serves to explain the final decision to take part in collective action. However, it remains unknown whether and how this largely psychological factor affects the decision making process of their receivers. Does it also cause variation in the importance of costs and/or perceived benefits?

There are two, mutually exclusive, ways in which process incentives might affect GB_i , PG_i and/or p_i . By examining which is most prevalent, we gain an important insight about the underlying motivations of protest activity and the role of process incentives in this decision. We focus first on and although the justification for the effect of this variable on is directly analogous. To begin with, the enjoyment associated with being involved might be seen as the ultimate criterion for one's decision to participate. This means that for those students who enjoy going to the demonstrations, staying in the occupied university and participating in activities organized by the protesters, the acquisition of the public good ceases to be a relevant issue. They simply take part because they receive process benefits which do not relate to the final outcome regarding the public good, seeing therefore the means as ends (Lichbach, 1996, pp.110-111). If this is the case, we should observe a monotonically decreasing impact of either sociotropic or egocentric concerns regarding the acquisition of the public good as people perceive more and more benefits from the act of protesting as such.

Alternatively, the presence of process incentives might simply be the initial consideration for most of the participants. Regardless of the importance of the public good, people might not get involved in collective activities unless they perceive some gains from these actions.

This means that for those for whom protest activity does not provide such benefits, participation becomes unlikely, regardless of the importance attributed to the acquisition of the collective good. If this expectation holds, we should observe a monotonic increase in the importance of either egocentric or sociotropic concerns regarding the bill, as people enjoy more the repertoire of activities associated with the students' movement. In other words, perceiving such process benefits is a first stage precondition for taking part in the movement. The final decision to (and to what to extent) do so would then depend on further concerns about the importance of the collective good. Therefore, for people who generally perceive such process benefits, the degree of involvement will depend more on the cause itself.

The logic regarding the p_i factor is analogous. If taking part in demonstrations and sit-ins is more entertaining than other possible activities, the perceived importance of one's own participation in the overall outcome ceases to be a relevant concern. Students who enjoy this process would take part regardless of the number of other participants and the perceived importance of their own participation. This is highly unlikely, however, for two reasons. Firstly because there is no evidence that the activities associated with protesting are perceived as more entertaining than the available alternatives (Lichbach, 1996, p.123) and secondly because process incentives are contingent on collective action itself (Chong, 1991, pp.90-91). Protesting all alone can hardly be considered as entertaining. Conversely, if process incentives are not the ultimate criterion but a precondition for further elaboration of the idea to get involved in protest activities, the perceived significance of one's own participation should become a more important concern for the final decision to participate for students who are more certain that, if not anything else, they will not get engaged in an unpleasant activity.

The way in which process incentives might qualify the importance of costs related to the process of protest engagement is more straightforward. First, it could simply make issues related to wasting of time or the potential implications due to taking part in partly illegal activities less relevant, i.e. people perceive these inconveniences but attach less importance to them in their decision to participate. This does not mean that the original participation costs are per se minimized. What it only implies is that they lose importance in people's decision to take part in protest activities. Chong (1991, pp.83-84) offers an illustrative example in this respect: when considering the position of the secretary in the organization, an NAACP activist calculated the extra cost of relocating himself and his wife to New York against 'working side by side with the most exciting civil rights leader of the day.' On the contrary, if process incentives are a necessary condition for further elaborating the potential costs from this enterprise, *PC* should gradually acquire more significance as people perceive entertainment benefits from this process. This is because participants will be more likely to see costs as benefits as they 'relish the spirit of sacrifice and see themselves as martyrs, national liberators, popular heroes, and guardians of their group's interest' (Lichbach, 1996, p.111).

[Figure 2 about here]

The examination of these contrasting hypotheses entails the interaction of process incentives with each of the key terms of equation (1). What is of interest here is how the coefficient measuring the effect of other potential considerations varies according the extent to which participants perceive process benefits from their protest activity. The results regarding the core rational choice model are illustrated graphically in Figure 2. We refrain from presenting the full results of each interaction model in tables in order to save space. The pattern of interest is captured effectively by simply plotting the marginal effect

of the rational choice terms along the process incentives scale. Interestingly, process incentives do not simply cancel out the cost-benefit logic of students' decision making process. To be sure, the drastic drop in the magnitude of all coefficients associated with the core rational choice model when this factor is introduced, as shown in Table 2, indicate that this is indeed one of the effects. What Figure 2 shows, however, is that this is not the only effect. Additionally, perceiving the whole participation process as a pleasant experience causes important changes in the value attached to each of the terms of equation (1). With the only exception of perceived costs, whose impact seems to slightly drop as people perceive more benefits from the act of involvement, but in no instance does it achieve statistical significance along the entertainment scale, in all other instances process incentives behave as a first stage precondition for the final decision to participate. In the absence of these perceived benefits, further considerations about the importance of the public good and the perceived efficacy of one's single involvement lose their importance. This is also the case for perceived cost, although in this case, the effect does not seem to exert a statistically significant (negative) effect even at the lowest levels of process incentives. Taken as a whole, however, the findings clearly speak in favour of the hypothesis that process incentives work as a first-stage condition in the decision to take part in the movement.

[Figure 3 about here]

This conclusion is further corroborated when we broaden the list of participation predictors by looking at the interaction between process incentives on the one hand and social norms, pessimism (or else grievances) and the law evaluation on the other. In the first case, the first two upper graphs of Figure 3 show that having the agreement of important others is an important condition for taking part but only if one has already

perceived some socialization benefits from her own personal involvement. If this is not the case, the effect of the family is only marginal. Interestingly, what appeared as a null marginal effect of ‘important others’ conceals a great deal of heterogeneity in this effect, accounted for by using process incentives as a mediator. The same conclusions are drawn also for pessimism and law evaluations. Both matter but determine participation only among those who perceive some gains stemming from their participation in the movement.

Sensitivity analysis

Before we move to the theoretical implications of our findings for the study of protest activity, we need to address an important competing interpretation of the pattern found in Figures 2 and 3. The marginal effects plotted in these graphs stem from the interaction of process incentives with each of the other terms forming part of the other models examined in Table 2. To be sure, the interaction term in these estimations can only tell us whether the average level of participation increases as the two constituent terms that form the interaction term jointly go up. This is always the case with interaction models. What this means is that it is theory that will dictate which of these terms is to be interpreted as the mediator, qualifying the marginal effect of the other constituent term. Here, we have been focusing on the role of process incentives, looking at its mediating effect on the impact of other predictors of protest activity. Our theoretical argumentation allowed us to distinguish between two different mechanisms through which process incentives may be linked to the core rational choice model. The presence of process incentives could either suppress or boost the impact of egocentric or sociotropic considerations—just to mention two examples from the graphs. We found that it largely does the first. However, this interpretation does not exclude the possibility that things are actually the other way

around: instead of conditioning the impact of the core rational choice model, the effect of process incentives may be in turn conditioned by the presence of egocentric or sociotropic concerns. If that were the case, we could still observe a significant interaction effect between the variables shown in the two axes of the graphs. Indeed, based only on the regression results upon which the graphs have been based, we cannot distinguish between these two competing hypotheses. Is it that it is mainly process incentives that operate as mediators for the other variables or is it that the presence of egocentric or sociotropic concerns is also a precondition for the importance of process incentives? To address this question we need to relax the linearity assumption imposed in all our estimations thus far. What is needed is to compare the effect of process incentives for individuals who score high in the rational choice variables and for those who score low. We then need to evaluate the observed pattern by comparing it with its mirror image: the effect of rational choice or social norms indicators for low and high levels of process incentives.

[Figure 4 about here]

Figure 4 displays the results. Each graph comprises two local regression lines (loess), which trace the mean response locally, making only minimal assumptions about how the focal variable affects the outcome of interest (in our case protest activity). In each graph the solid line denotes respondents whose score in the variable performing as mediator is above the median. The dashed line denotes respondents with scores below the median. The graph has to be read as follows. The first and third row depict the relationship between process incentives and protest involvement, distinguishing between two groups with low (below median) and high (above median) values in the variable that is mentioned next to each line. For instance, in the first graph we see how mean participation rates vary across the process incentives scale for those with low and those with high values of ‘sociotropic

benefit'. If it were the case that sociotropic concerns operate as a mediator for the effect of process incentives, we should observe some notable gap in terms of average levels and, most importantly, a difference in the slope of the two monotonic lines. What we see, however, is that the two lines run in parallel and very close one to the other. Clearly, once one knows the individuals' score in the process incentives scale, knowledge on sociotropic concerns hardly adds to our ability to predict one's level of protest activity. The second and the fourth row, display the mirror image of the graphs in rows 1 and 3. They show how the other variables included in Figures 2 and 3 affect participation distinguishing between two groups: those with low (below median) levels of process incentives and those with high (above median) levels of process incentives. The idea is to compare each graph of row 1 with its equivalent right below, in row 2. The same comparison is made between the graphs in row 3 and row 4. For instance, having examined in the first graph of row 1 how the impact process incentives is qualified by one's level of sociotropic concerns, we turn to the first graph of row 2, which presents the effect of sociotropic benefit on protest participation for people with low and high levels of process incentives. Here, the pattern is straightforward. Sociotropic concerns appear to matter but only for those scoring highly in the process incentives scale.

The overall pattern emerging from Figure 4 is quite telling. Looking at the graphs of rows 1 and 3 we see that other factors, either those encompassed within the rational choice model or those employed in the estimation as controls, do not do much to condition the effect of process incentives on protest activity. The two lines are always very similar, more often than not very close to each other. Contrast these findings with those presented in the second and fourth rows of Figure 4. For people who score above average in the process incentives scale, sociotropic and egocentric concerns as well as perceptions of one's ability to influence the overall outcome (row 2) influence noticeably the mean participation level.

For those who do not see such incentives from the act of taking part in the movement, however, the effect of these factors is much lower and remains so along the x-axis (the range of values in the two rational choice scales). The same conclusion is drawn if we look at the role of law evaluations, grievances and social norms (row 4). These graphs confirm the interpretation given to the findings from Figures 2 and 3, even when no parametric assumption is made in the attempt to disentangle these relationships. All these results point to a significant conditional effect of process incentives on the impact of rational choice concerns and other important factors in protest involvement. The only exception is the variable denoting the perceived cost from taking part in the protests. Although cost does not qualify the effect of process incentives, in this case process incentives do not seem to change the impact of this variable on mean participation either. That said, we still find a downward trend among people with high process incentives, confirming the idea that cost matters, even marginally, only among those who also perceive some gains from getting involved into the students' movement.

Conclusions

Rational choice theory has often been employed in order to explain the occurrence of political protest. In order to overcome the paradox of non-participation brought by the problem of free-riding, researchers have typically expanded the reasoning of core rationality to include what is now known as selective incentives. For protest activity, research has often used process incentives, in other words incentives that are related to the act of protesting itself. In this paper we examined the role of process incentives associated with entertainment, solidarity and identity. We explored whether the expected gains from the act of protesting influence an individual's decision to take part in protest activities and examined the extent to which process incentives qualify the weight individuals attach to

the primary elements of the original cost-benefit equation of rational choice theory as well as other considerations potentially crucial for their decision-making process. Drawing on original data collected during a period of university student protest in Greece, we showed that the magnitude of the effect of such process incentives is very strong and its inclusion in a rational choice model substantially improves our understanding of students' participation in protest activities. Turning to indirect effects, we showed that process incentives behave as a first stage precondition for students' decision to protest. In the absence of the perceived benefits associated with the process of protesting, the importance of attaining the public good, the students' perceived efficacy, the opinion of their family, friends and significant others, and the issues related to the primary reason of protesting become much less important.

Although stemming from a particular case study, the implications of our findings are in principle transferable to various instances of protest activity. Social movements are typically associated with a general sentiment shared among participants that something really important is under process, and when this is the case, it always feels good to be part of it. To be sure, it remains an empirical question the extent to which this sentiment qualifies students' concerns about the benefits stemming from the act of protesting. However, the evidence presented here provide a first rigorous attempt to reconsider the role of selective incentives not only as additive engines of participation but as underlying factors which condition the original calculus of people's decision-making process. This should be hardly surprising if one considers the 'marketing' aspects of most large-scale participatory movements. Books, songs, movies, posters, pin-back buttons and other related objects serve to clarify the underlying concern: it is not only that we belong in a group which shares a common concern. It is also that this group shares with us more general interests and beliefs. Taking part thus also means finding a way of projecting

ourselves within our proximate context. It is about what we think we are or want to be. Moreover, it gives the illusion of ruling the space and the moment, experiencing the participatory democracy and being in charge of it as it takes place. This is clearly the line of thinking among leftist students in Greece during every instance of protest within the university.

[Figure 5 about here]

What do these results tell us about the motivations of Greek students involved in protest activities? Figure 5 shows the expected value of process incentives across the left-right continuum. The pattern is straightforward. Process incentives are much higher for those located at the left than those located at the right. It is for those students that the networks of the protest movement provide socialization benefits (see Jennings, 2002) and activities that make the whole process more entertaining. Leftist students either organized in a student union or not, exert a prominent role in the process of occupying faculty buildings and organizing protest activities in general. They have almost full control about the type of activities organized during this period in the university. As the provision of selective (and process) incentives can be viewed as a collective action problem in itself (Oliver, 1980, p.1361), this finding explains why some students get in the trouble of becoming more involved in protesting by organizing the associated activities. It is because the anticipated payoff from this process is substantively larger for them. In our case, non-leftist students also took part when they believed that the bill needed to be amended or fully abolished, but the idea of being entertained during protesting was not an important concern mainly because they had much less to expect in these terms.

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Table 1: Descriptive statistics about the distribution of observations and mean level of participation among universities/faculties

University	Faculty	<i>N</i>	%	Mean level of participation
1 Panteion University	-	20	4.0	3.67 [2.68-4.66]
2 National Kapodistrian University of Athens	Faculty of Law, Economics & Political Science	34	6.7	2.95 [2.29-3.61]
3 Athens University of Economics & Business	-	61	12.1	4.11 [3.51-4.70]
4 University of Western Macedonia	Faculty of Humanities	37	7.3	7.01 [6.35-7.66]
5 University of Macedonia	-	118	23.4	4.51 [3.98-5.05]
6 National Technical University of Athens	-	20	4.0	3.97 [3.07-4.86]
7 Aristotle University of Thessaloniki	Faculty of Humanities	46	9.1	4.45 [3.62-5.28]
8	Faculty of Engineering	37	7.3	4.74 [3.82-5.67]
9	Faculty of Law, Economics & Political Science	66	13.1	4.63 [3.82-5.43]
10	Faculty of Fine Arts	17	3.4	5.78 [4.24-7.31]
11	Faculty of Science	26	5.1	3.27 [2.42-4.12]
12 Democritus University of Thrace	Faculty of Engineering	23	4.6	3.61 [2.87-4.35]
Total/Average		505		4.45 [4.20-4.71]

Notes: Bootstrapped confidence intervals (100 replications) into brackets.

Table 2: Random intercept models of student protest activity.

	Controls	Core Rational Choice	Social Norms	Process Incentives	Encompassing
Controls					
<i>Individual-level</i>					
Left-right	-.387 (.045)	-.294 (.041)*	-.310 (.045)*	-.259 (.039)*	-.199 (.037)*
Law Evaluation	-.143 (.047)	-.086* (.043)	-.110 (.046)*	-.067 (.040)	-.037 (.038)
Postmaterialism	.592 (.102)	.439 (.091)*	.483 (.099)*	.372 (.087)*	.292 (.082)*
Pessimism	.545* (.139)	.308 (.127)*	.435 (.135)*	.334 (.119)*	.198 (.113)
Year starting studies	.057 (.052)	.101 (.047)*	.042 (.051)	.071 (.045)	.086 (.042)*
Gender	-.507* (.052)	-.547 (.180)*	-.617 (.195)*	-.653 (.171)*	-.712 (.160)*
Sampling	1.67* (.428)	1.13 (.351)*	1.55 (.442)*	.925 (.324)*	.426 (.243)
Student union membership	1.01* (.242)	.579 (.218)*	.875 (.134)*	.336 (.208)	.267 (.190)
<i>Faculty-level</i>					
Location: Athens	.021 (.576)	-.006 (.448)	.227 (.671)	.204 (.401)	-.103 (.266)
Location: small town	-2.79 (.978)	-1.10 (.535)*	-1.43 (.808)	-.988 (.480)	-.829 (.332)*
Area of study: science	.464 (.502)	.277 (.383)	.477 (.536)	.246 (.347)	.227 (.243)
University of Western- Macedonia	2.98* (1.28)	1.96 (.948)	3.04 (1.25)	1.29 (.872)	1.17 (.821)
<i>Rational Choice variables</i>					
Egocentric		1.21 (.329)*			.512 (.302)
Sociotropic		2.77 (.373)*			1.73 (.346)*
Cost		-.209 (.077)*			-.070 (.069)
<i>Selective Incentives</i>					
Family Opinion			.190 (.032)*		-.130 (.027)*
Friends' Opinion			.006 (.032)		-.027 (.026)
Process incentives				1.03 (.071)*	.788 (.074)*
Intercept	-1.71 (1.52)*	-1.03 (1.11)	-1.03 (1.11)	-1.21 (.991)	-1.80 (.858)*
% of variance at the faculty level	12.2%	7.9%	12.9%	6.6%	1.8%
Log-Likelihood	-1075.74	-1017.09	-1061.16	-994.18	-963.71

AIC	2181.47	2070.19	2156.32	2020.37	1969.42
BIC	2244.84	2146.24	2228.14	2087.97	2058.14

Note: Entries are ML coefficients, standard errors in parentheses, LL, AIC and BIC calculated with ML, coefficients, standard errors and the variance of the constant are calculated with restricted maximum likelihood. 505 students nested within 12 faculties, departments or universities. * $p < .05$ or lower.

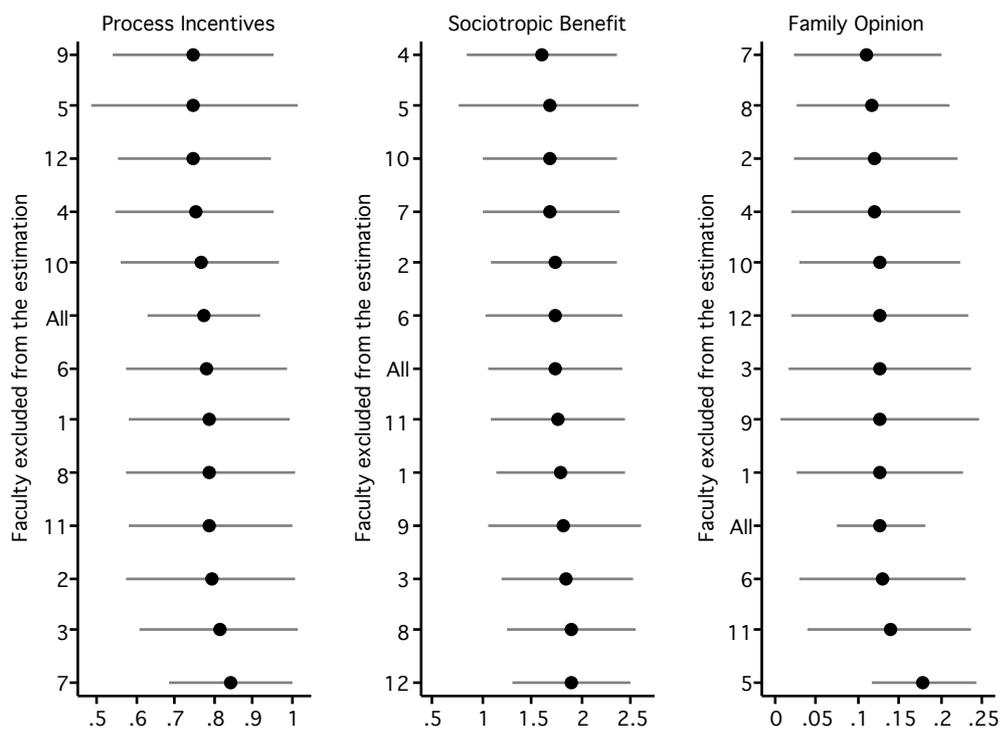


Figure 1: Examining the sensitivity of the estimates for the key variables by successively excluding one faculty from the analysis.

Note: The first graph depicts the point estimates (black dots) and their accompanying 95% confidence bands (gray horizontal spikes) for the process incentives scale. The second and third graphs show the equivalent results for the ‘sociotropic’ and ‘family opinion’ variables’. The numeration of the y-axes follows the numeration of second-level units shown in the first and second column of Table 1.

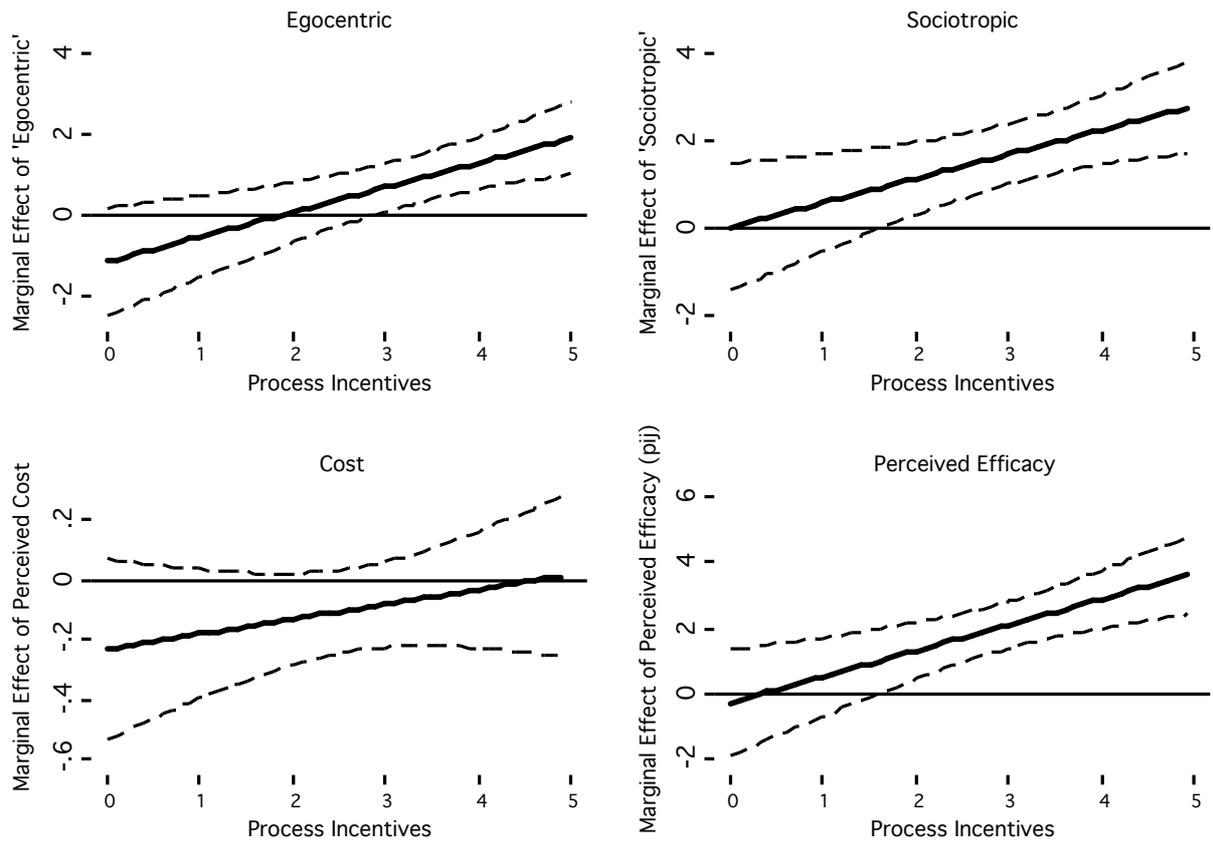


Figure 2: The marginal effect of all variables included in the core rational choice model on protest activity, conditional on students' perceived incentives stemming from the act of taking part in the movement.

Note: The solid line denotes the marginal effect across the process incentives scale, whereas the dashed curves represent the 95% confidence bands of these point estimates.

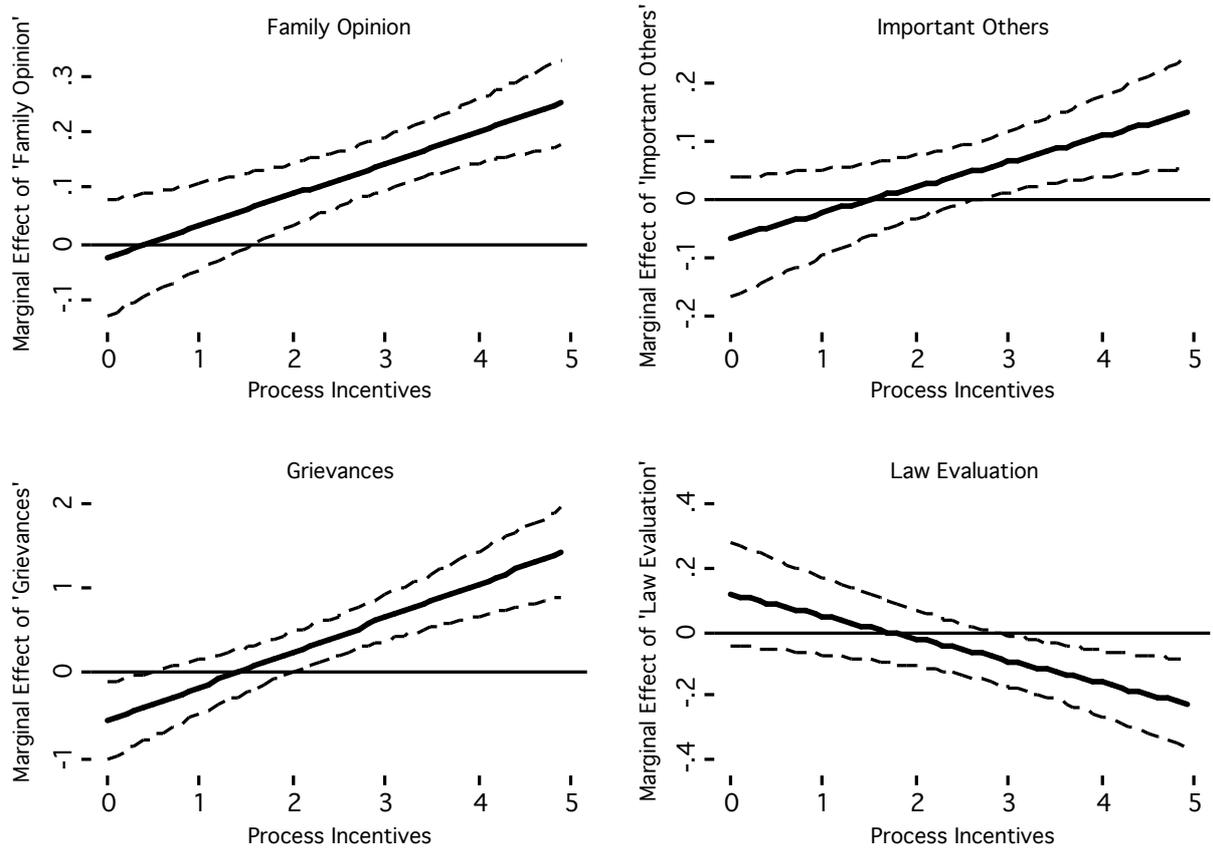


Figure 3: The marginal effect of social norms, law evaluations and grievances on protest activity, conditional on students' perceived incentives stemming from the act of taking part in the movement.
 Note: The solid line denotes the marginal effect across the process incentives scale, whereas the dashed curves represent the 95% confidence bands of these point estimates.

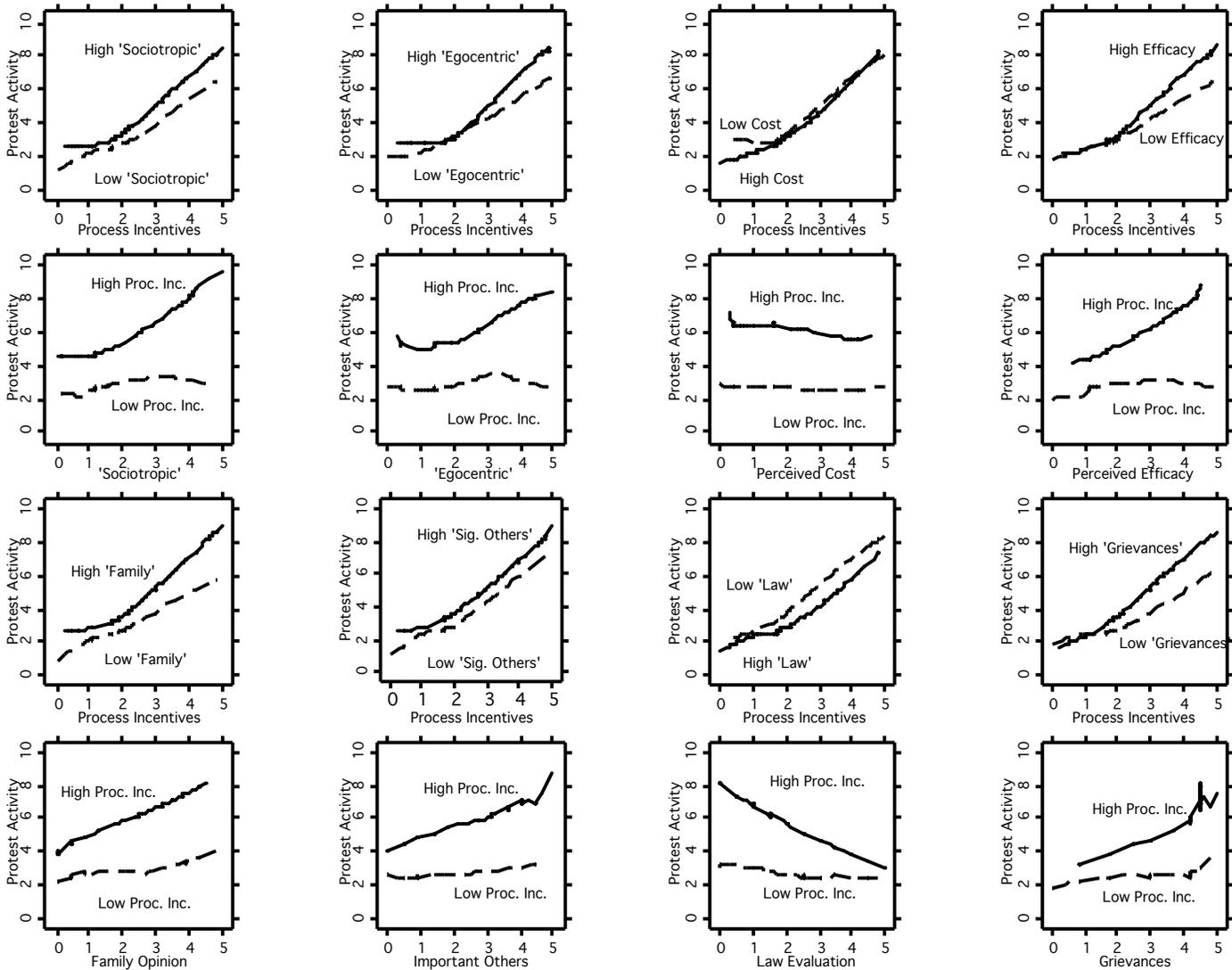


Figure 4: Disentangling the interactive relationship between process incentives and other determinants of protest activity.
 Note: All lines represent local regression curves (loess estimates), for two groups of students: those with high values (above median) in the variable that is treated as the mediator and those with low values (below median) in the same variable. Each graph of rows 1 and 3 needs to be compared with the graph that is in the same column and one row below. Rows 1 and 3 present the effect of process incentives protest activity conditional on where respondents stand in the other variables and rows 2 and 4 present the effect of all other variables conditional on respondents' values in the scale measuring process incentives. With the exception of protest activity, all variables have been recoded to range from 0 to 5.

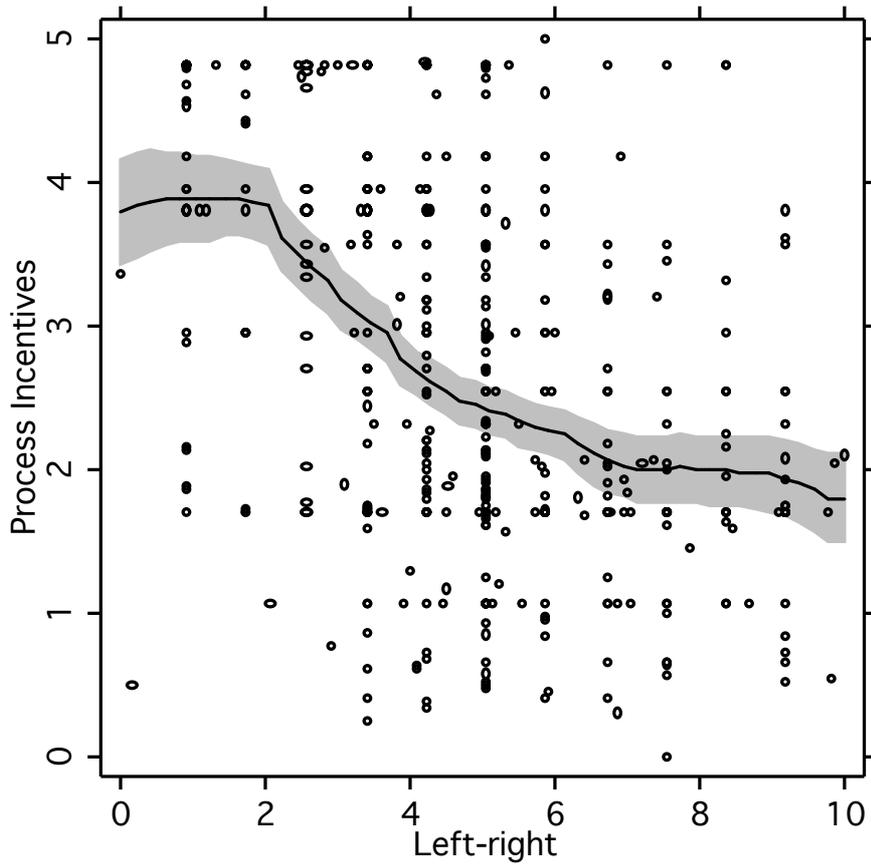


Figure 5: The relationship between left-right self-placement and the extent to which students find incentives from engaging in protest activity.

Note: The solid curve denotes the local polynomial curve passing through the scatterplot between process incentives and left-right. The shaded area denotes the 95% confidence bands of the local estimates.

Appendix*

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In the following tables, we explain in more detail the measurement strategy employed for the operationalization of the terms denoted in equations (1) to (3). Table 3 shows the list of variables included in the index of protest participation, constructed by extracting a single factor from a factor analysis (Iterated Principal Factor method used for the analysis of the correlation matrix) of these items. Following either Kaiser's rule of thumb (of taking all factors whose eigenvalue is greater than 1), or the visual test of the screeplot (choosing the number of factors to the left of the elbow-point), the common variance of all indicators was shown to be most effectively captured by a single factor.

Given that we refer here to the dependent variable of interest, some further details need to be mentioned. To start with, the total amount of common variance among all seven standardized indicators was 2.07. This means that FA captures only 41.4 percent of the total variance simply because this is the portion of variance shared among the different indicators. The factor solution seems to capture well the linear structure among the variables since it reproduces the correlation matrix with relative accuracy (Sum of squared errors .0023). To be sure, there is some variability in the portion of variance each variable shares with the others. The one showing lowest levels of communality is that referring to the number of general assemblies in which the individual took part. It seems that the variability in this indicator is dependent more on the institutional arrangements of each faculty than on the individuals themselves. This is because there is some variability regarding the total number of assemblies that took place in each faculty and thus individual differences might simply be the outcome of this inter-university variation. That said, according to the structure matrix (which of course is equivalent

*This is an appendix to the paper 'Revisiting the role of process incentives as a determinant of university students' protest' published in *European Political Science Review*.

Table 1: Measuring the dependent variable of protest participation.

Question	Factor loadings	Average score
Voted for university student occupation (0, 1=Yes)	.723	.20
Number of assemblies respondent attended (1= None, 2=one, 3=more than one)	.476	2.44
Visit university during the occupation (0, 1=Yes)	.575	.58
Number of marches participated (1= None, 2=one, 3=more than one)	.786	1.50
Active in occupation (0, 1=Yes)	.641	.20
Eigenvalue	2.07	
Percentage of total variance shared	41.4	

to the pattern matrix for one-factor solution), all selected variables seem to correlate significantly with the underlying factor. Since the latter is regarded as a measure of true participation, we can evaluate its reliability by examining its variance. The score of .803 shows that the constructed factor captures large part of the variance of the latent dimension. We have also tested the scalability of the items by transforming the two trichotomous variables into dichotomous. With regard to the number of assemblies a respondent took part, we have simply distinguished between those who attended more than one assembly (1's) and those who attended to one or none (0's). The recoding for the equivalent variable asking respondents about their participation in marches is analogous. With all indicators coded in a dichotomous fashion, we employ a Mokken scale analysis (Mokken 1971), which constitutes a non-parametric version of Guttman scaling, particularly designed for polytomous and dichotomous variables. The resulting H-coefficient, which provides an indication of the unidimensionality of the indicators, is .6, much higher than the recommended value of .3. None of these indicators is excluded from the scale, a yet another indication that all five items are to be included in the same scale. Replicating the analysis by using the summated rating scale generated from this procedure leads to the same substantive conclusions as the ones drawn in the main part of the paper. We opt for a factor-analytic approach because it allows us to use the full metric of the individual indicators, since all of them are standardized before the estimation of the pattern matrix. Employing a summated rating scale would necessitate to normalize

all indicators with regard to their range of values.

Table 2: Measuring perceived efficacy

Question	Item-rest correlation	Alpha if item deleted
'The dynamics of the movement within the university would not be the same if I would have not taken part' (0, 1=Yes)	.65	.64
'My participation made a contribution to the occupations, no matter how small' (0, 1=Yes)	.51	.76
'My contribution motivated other students to take part in the movement' (0, 1=Agree)	.68	.60

The measurement of personal and general benefit involved two questions the answers of which were coded as dummy variables. For Personal Benefit: 'Regardless of general consequences, the proposed bill would not affect my studies in person' (0, 1=Disagree). For General Benefit: 'Regardless of personal impact, the problem was that the law would be applied to other students' (0, 1=Agree).

Moving to the scale used for the measurement of perceived efficacy, the questions refer both to the respondents' perception about the importance of their own contribution to the overall outcome as well as to the extent to which their own contribution was important by inducing the participation of other students. Given the identical measurement of the three questions (all agree/disagree items) we constructed a simple summated rating scale consisting of these three items. The basic assumption upon which the construction of these scales is based is that of a monotonic relationship between the items. To test this assumption, a locally weighted regression (loess) curve was fitted to a scatterplot between scores in each item and scores on a scale comprising the other two items (Jacoby 1991). As all non-parametric regression methods, the basic idea behind the loess curve is to trace the salient features of the mean response making only minimal assumption about its distribution (Fitzmaurice, Lard & Ware 2004, 69). The graphs generated from this procedure show that the assumption of monotone relationship is easily satisfied. A good indicator of scale reliability with summated rating scales is Cronbach's alpha which is the average correlation of all possible split-halves among the indicators. Cronbach's alpha for the perceived efficacy is .771, which is over the conventional .7 rule for a scale to be considered as reliable. To test whether the implicit assumption of equal weight of all three items is satisfied, we also proceeded with a simple factor analysis (IPF)

from which we extracted one factor. The variance of the constructed factor is marginally larger (.779) and the pattern matrix shows that all three variables load almost equally to the factor. Thus, for the sake of greater simplicity, we employed the original summated-rating scale.

Table 3: Measuring perceived cost

Question	Factor loadings
‘Participation takes time from other important issues in personal life’ (0, 1=Agree)	.65
‘Taking part in occupations entails the risk of being labeled as a trouble-maker and might cause problems with the authorities’ (0, 1=Agree)	.51
‘Helping in the movement might cause problems in continuing my studies’ (0, 1=Agree)	.68
Eigenvalue	.95
Percentage of total variance shared	32

Perceived cost is measured with much noise and this might be a reason for not finding very strong evidence for this factor. Trying to combine the three questions in a single scale does not seem to produce a reliable measure because the three items do not share much part of their variance.¹ Although this results to a noisy scale, we refrain from using the three items separately, assuming that each of them relates to a different aspect of the same underlying dimension which the notion of cost: that stemming from the act of voting itself; from the need to comply with general social conventions; and from the duration of the occupations in a more instrumental sense. Importantly, when each item enters separately in the equation the interpretation of the results is identical.

The variable capturing process incentives was constructed through a one-factor solution of a factor analysis (IPF). The reliability of the scale is .789. The equivalent coefficients attached to process incentives in the last column of Table 2 in the main text when the individual indicators are used are as follows. ‘Pleasant and entertaining experience’: 1.28 (.186); ‘meeting like-minded people’: .975 (.177); ‘feeling comfortable’: .886 (.092). The results related to the mediating role of process incentives are also almost identical to those presented in the main text.

¹In effect, the reliability of an encompassing scale of cost falls below .5 if equal weight is given to the indicators and somewhat larger than this threshold when different weighted are allowed.

Table 4: Measuring process incentives

Question	Factor loadings
‘For me, participating in protests and occupations is a pleasant and entertaining experience’ (0, 1=Yes)	.72
‘For me, participating in protests offers the opportunity to meet like-minded people’ (0, 1=Agree)	.79
‘I feel comfortable taking part in the movement’ (1–4=Strongly agree)	.69
Eigenvalue	1.62
Percentage of total variance shared	54

Table 5: Measuring pessimism.

Question	Item-rest correlation	Alpha if item deleted
‘The proposed bill is part of a general plan to distort the public and free aspect of Greek higher education’ (0, 1=Agree)	.71	.38
‘As a student I feel that my future is unsafe’ (0, 1=Agree)	.75	.26
‘Level of studies offered in the university relatively to the past has:’ 1: improved 2: stayed the same 3: deteriorated	.65	.52

To measure pessimism we attempted to use three questions about the extent to which students believe that the level of studies in the Greek university has increased or decreased during the last years, whether they feel that their future is unsafe, and whether they believe that the proposed changes are part of a more general plan towards the commercialization and liberalization of Greek higher education. However, as shown in Table 5, their overall scalability is questionable. This is particularly the case with the last of these indicators. Excluding this item the overall reliability of the scale seems to increase. Accordingly, our resulting measure consists only of the first two items, with an overall reliability of .53. Although this also implies that there is much noise in the measure, we choose to keep these two items together in a single scale, based on our prior theoretical beliefs that the three questions measure the same underlying dimension. Again, when each item is used separately, the results are very similar and substantively identical with the ones

presented in the main text.

Social norms were measured by an interaction term between a question regarding the family (or ‘significant others’) opinion about the students’ movement (coded -1, 1=Approve) and a question about the importance of the opinion of family (or ‘significant others’) to the respondent (coded 1–5=Strongly important).

For post-materialism, we use Inglehart’s (1971, 994) standard question with two modifications: in order to account for the effect of unemployment which, over the past years, has replaced inflation as a major economic concern (Clarke & Dutt 1991) we substitute ‘rising prices’ with ‘unemployment’ in the question wording. In addition, we use a four-point scale to measure post-materialism (instead of the typical distinction among post-materialists, mixed and materialists) by distinguishing between respondents who selected a post-materialist goal over those who selected a materialist goal as their first choice.

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