Political Economy at a Crossroads

On the Role of Emotions and Relationships

Towards a Decision Science

Prof. Dr. Frans A.A.M. van Winden

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Members of the Board,

Colleagues,

Ladies and Gentlemen,

Imagine you are in a cave with others. You are all fettered by the paradigm of standard economics and cannot change your perspective. In front of you, projected on a wall, are two-dimensional images of agents you call Homo Economicus. At some point you get freed from your paradigmatic fetters, make the ascent out of the cave and find out with some effort that in fact the images that you studied in the cave are great distortions from a very different three-dimensional Homo Sapiens. Enthusiastically, you return to your cave mates but they turn you a cold shoulder. They think you've gone crazy and try to stay away from you to keep their sanity. This scene – with my apologies to Plato – reflects a bit how I felt about 25 years ago when I got seriously interested in the role of emotions and relationships in economics and, in particular, in political economy. It fitted in well with my interest in group dynamics as well as my interest in laboratory experimentation that I had picked up over the years from people like Charles Plott and Reinhard Selten, which institutionally culminated in the start of CREED in 1991.

Political economy concerns the allocation of scarce resources in a society. Although for some people perhaps difficult to see, my academic research has always been motivated by issues of decisionmaking related to political economy. In my doctoral research and the first decade of my professorship I concentrated on the endogenization of political behavior in economic models. The *Interest Function Approach* that I proposed advocated a group-frame of reference, instead of the strict individualistic approach of Public Choice and the simplistic capital-labor distinction of Marxist economics. Most of my work at the time dealt with interest group behavior, where I should mention the names of Ben van Velthoven, Paul Renaud, Arthur Schram, and Jan Potters as collaborators. In the Nineties my research gradually shifted towards the role of affect.

My focus on groups and affect was, and still is, not standard in economics, including Public Economics and the related fields of Public Finance and Political Economics. *Homo Economicus* – the rational and selfish 'as if´ choosing model agent of standard economics – is a *mindless loner*, with neither a brain nor friends or foes. Surely, that paradigm was, and sometimes still is extremely helpful to get started with behavioral modeling or for a normative benchmark. However, in the light of what we now know from evolutionary biology, psychology and other behavioral sciences, the *mindless loner* paradigm should give way to get to a positive decision science.

Let's step back in time, for a moment. Evolutionary evidence indicates that up to very, very recently humans were members of hunter-gatherer groups of about 150 people (Dunbar's number). In this world until yesterday, band or tribe members individually knew each other

and formed affective networks of personal relationships. Some such groups still exist, like the Hadza hunter-gatherers from Tanzania. Evolutionary studies further argue that our brain only gradually developed more controlled cognitive deliberation skills, and is still primarily under the influence of its older automatic and affective *limbic system.* Thus, all in all, one would imagine that bounded rationality, behavior in relatively small groups, and affective relationships form an important starting point in any introductory textbook on political economic behavior, *quod non*.

I cannot go here into the wealth of recent experimental data that would be helpful in this respect. The rise and acceptance of laboratory experimentation as a research method in economics – with behavioral economics in its wake – has been extremely important and productive in getting research unchained from the standard paradigm. So, please beware of the limitations of my lecture! In line with the occasion, I will restrict myself to some of the research I know best, because I have been involved in it myself. This concerns the role of affect and small groups in collective action and appropriation, two key issues of political economy. In both cases I hope to make clear through experimental evidence that something important is missing in the current approach of Public Economics.

Collective action

A prominent place in introductory textbooks on Public Economics is reserved for the free-riding problem in the voluntary provision of a public good. An example of a local public good is a clean and safe neighborhood that everyone in the neighborhood consumes and can fully enjoy. As it is not in the selfish interest of a homo economicus to contribute, collective action – that is, action to promote the common interest – is predicted to fail, which then provides a key rationale for a government to appear on the scene. This raises the following question, however: why were hunter-gatherer groups, without a coercive government institution, apparently able to successfully deal with this problem? Experimental evidence suggests that indeed collective action is likely to fail if people interact with strangers all the time. The outcome is less clear, though, if people meet repeatedly, even in Dunbar-sized groups. What drives these outcomes is not well understood.

My own research suggests that for an answer to this question we should look at the neglected role of affect, in particular, the role of *affective bonding*. In collaboration with others, I have found substantial evidence for the existence of an affective social tie mechanism, with important political economic implications. Let me first shortly discuss the nature and main components of this *tie-mechanism*, which builds on a theoretical model by Frans van Dijk and myself, published in 1997 in the *Journal of Public Economics*.

An *affective tie* concerns the weight that someone attaches to the well-being or utility of another individual. A positive weight indicates a positive relationship, where the other is seen as a kind of friend. A negative weight, on the other hand, stands for a negative

relationship, where the other is seen as a foe. With a tie value different from zero, an individual starts to care about the utility of a relationship partner. Consequently, an individual's utility becomes extended, as the tie value times the other's utility gets added to one's own utility. Importantly, a tie is not fixed but assumed to be determined by a weighted combination of the tie that already existed (which may have a value of zero) and an *impulse*, where the latter is generated by the actual behavior of an interaction partner in comparison to a reference action. An interaction experience that is better than the reference behavior – a positive impulse – is supposed to foster a positive bond with the interaction partner, while a negative impulse feeds a hostile relationship. As said, a relationship makes one take into account the impact of one's decisions on a relationship partner's utility because the latter's utility becomes part of one's own extended utility.

This affective social tie model has been succesfully applied to several datasets of public good game experiments. At first, indirect support was obtained in a series of studies indicating that interaction success in terms of contributions or earnings influence people's distributional preferences regarding their interaction partner in the predicted direction. In short, people are willing to give money to someone with whom they experienced a good interaction, but are also willing to take money away from that person if their interaction was bad, even if doing so is costly and there is no further interaction. These findings come from joint work with Frans van Dijk, Joep Sonnemans, Arno Riedl, and Jordi Brandts. More recently, direct model estimation, in particular in joint work with Benjamin Pelloux and my current PhD-student Ben Loerakker, has revealed the following: first, that selfish behavior is taken as the reference behavior; second, that the initial tie value can be proxied by someone's so-called social value orientation, which measures an individual's preference about how to allocate resources between the self and a stranger; and, third, that the weights attached to both the previous tie and the impulse (after normalization) are about ½. These weights imply that the impact of a partner's behavior, without further impulses, lasts for about four rounds of interaction, on average.

In a second take on the above tie-mechanism specification it can be shown that it is formally in line with an *optimal information filter* regarding the uncertainty surrounding an interaction partner's friend-or-foe type and her or his decisions. The relative weight attached to the impulse turns out to be positively related to the (friend or foe) type uncertainty and negatively related to the decision uncertainty. Which has the intuitive implication, for example, that the more certain you feel about your friendship, the less you mind your friend's current behavior.

What is <u>key</u>, however, is that the proposed tie-mechanism also leaves a neural signature affecting one's social preferences. Before I continue with this third, neurobiological take on the tie-mechanism, I would like to reveal something more personal. The idea to directly estimate the parameters of a ties model was triggered by my collaboration with neuropsychologist Richard Ridderinkhof who proposed to do a model-based fMRI (brain-

scanning) study, to investigate whether neural support could be found for a tie-mechanism. At the time, he may not have fully realized what that implied from my perspective. First of all, the model we had was theoretical and had to be turned into an estimable model. Secondly, it assumed myopic behavior, which should be relaxed to allow at least for some forward-looking strategic behavior. Thirdly, whereas virtually all existing analyses in experimental economics focused on static equilibria or used a relatively simple reinforcement learning model, we would have to venture into dynamic territory, with no success assured. I very much liked the ambition, though, and worked out an adapted and extended social ties model that he agreed on. It was a great relief to find the direct econometric support discussed above. Particularly, because this success was necessary to do the model-based fMRI study, where estimated model parameters are linked to brain activity.

At that point, we got important research assistance from two postdocs, namely, Johannes Fahrenfort and, in particular, Nadège Bault. Also this work had a happy ending, because our findings indeed pointed at the existence of a *neural substrate* for the tie-mechanism. More specifically, a brain region called the *posterior Superior Temporal Sulcus* (pSTS) appears to encode the dynamic tie value, whereas the *anterior Insula* is involved in encoding the impulse. The former region has been previously implicated in inferring others' intentions and the signaling of cooperative partners, friends and loved ones, while the latter region is implicated in social affective responses like empathy. Furthermore, the pSTS activity turns out to be functionally connected to the activity of the *medial Prefrontal Cortex* that in its turn tracks the size of the contributions to the public good that people decide on in the experiment.

Although still speculative, growing neurobiological evidence suggests furthermore that this tie circuitry may be part of a more general bonding mechanism that evolved from a primordial maternal-care neural system in mammals. It has been argued, for instance, that care by others than the mother may have been essential for infant survival in hunter-gatherer type societies, and thereby favored by natural selection. Simply put, this bonding mechanism would involve an interaction between the neuropeptide oxytocin (known and for sale as the 'love hormone' on the internet) and the mesolimbic dopamine system, which motivates approach and caring. Both the recognition process – when stimuli related to the other get a valence – and the persistent attraction process in bonding are considered to be the result of neural plasticity mechanisms, similar to those involved in memory. In other words, the development of a social tie appears to be a real brain changer. What a fascinating time period for neuroeconomics and decision-neuroscience!

The estimated tie model is able to track the *interaction dynamics* in experiments remarkably well, within- as well as out-of-sample, and performs better than the few other models that lend themselves for this purpose. Whereas some interactions show persistent volatile behavior, others develop into stable cooperative *relationships* or turn into a stable destructive relationship. Interestingly, our estimation results at the individual level further

suggest that most participants would actually support an efficient cooperative relationship, *if* a partner would behave accordingly, in strong contrast to the free-riding homo economicus of our textbooks. An even more fundamental contrast is that the existence of a tie mechanism entails endogenous social preferences that can no longer be assumed to be given and stable. Through the dynamics of someone's affective social ties network, a *social preference drift* is generated (where I borrow the term 'preference drift' from Bernard van Praag's work on the individual welfare function).

My fourth and final take on the tie mechanism concerns spill-over effects of affective networks. Experimental findings, including some of my own, suggest that one's sentiment regarding a stranger that one meets in a present context is affected by previous experiences in a similar contexts. More generally, I propose that this sentiment is the cumulative effect of one's interaction experiences in related previous contexts. Formally, this can be represented by a *generalized tie value*, determined by the ties developed within previous contexts weighted by the association strengths between the present context and these previous contexts (in fact, a prior distribution regarding the stranger's friend-or-foe type is thus determined). My conjecture is that this generalized tie value is proxied by current measures of people's social value orientation.

The implications of a tie mechanism for understanding and predicting social behavior go way beyond the issue of the volutary provision of public goods discussed above. Other examples, concerning both the private and the public sector, will be given below. Here, I would like to continue with a short discussion of its relevance for the provision of *public goods affecting many people* instead of the few participants in standard experiments. First of all, it is noted that affective relationships, even if only generated through interaction in dyads, can in principal solve free-riding problems for Dunbar-sized groups, like hunter-gatherer societies. The reason is that, through these ties, group members take the external effects of their behavior on potentially even all other group members into account. For our modern, much larger societies, let alone the global level, additional mechanisms are required. Perhaps surprisingly, also in this context, affective dyadic relationships appear to play an important role, but now vertically oriented towards leaders. Examples abound in history of leaders exploiting such dyadic relationships to produce large scale public goods (or bads …). I will discuss some experimental evidence below, after addressing the topic of appropriation next.

Appropriation

Appropriation involves a claim on the resources or, more generally, the lifespace of someone else. This can happen via the use of authority or via contests. Taxation is a case in point. Initially, Public Economics focused on the collection and distribution of government revenues, later joint with macroeconomic policy models. At present, the field has become characterized by a microeconomic focus with a prominent place reserved for optimal

taxation, figuring a savvy homo economicus. The question is whether this is a good starting point for understanding the behavior of taxmen and taxpayers. I don't think so.

Take the statement of Atkinson and Stiglitz – in their famous textbook *Lectures on Public Economics* – that Public Finance might be a simple matter if everyone is identical, because in that case one has to (I quote): "just impose lump-sum taxes". A tax of a fixed amount – a head tax or poll tax – would suffice to avoid any welfare cost of taxation. This claim is simple to test in an experiment with the so-called *power-to-take game*, that Ronald Bosman and I designed and investigated in a series of experimental papers, mostly together with others, where in particular the name Ernesto Reuben should be mentioned. In this game one participant – the taker – can claim income from another participant – the responder – who can subsequently only destroy part or everything of her or his own income. Under the assumption of a (rational and selfish) homo economicus this is indeed an optimal tax because no inefficiency generating distortion of behavior will occur. Homo economicus will pay the tax, whatever it takes, because any destruction will lead to less after-tax income. But what will real people do? Our experimental evidence shows that takers claim about 60% of the responder's income – which is identical to their own income – and leave the experiment with 4.5 times the earnings of responders. What is more important here, however, is that responders destroy on average about 20% of their income in response to the taking, which form a pure welfare costs as these resources are lost to both parties. Further analysis shows that anger appears to mediate the impact of taking on destruction.

The affective social ties model helps explain the behavior of responders, because negative impulses generated by greedy takers feed into a negative tie that induces people to hurt the taker even if it is costly to themselves. As a consequence, takers are confronted with an *emotional hazard*. They run the risk of evoking anger-induced destruction of resources when choosing how much to appropriate. There are many historic examples of emotions playing a role in the response of taxpayers. This should ring a bell, for example, with people familiar with Dutch history, as a revolt against a planned sales tax by the Spanish usurper played an important role in triggering the 80-years war with Spain and the start of the Dutch Republic. A recent dramatic example concerns the Tunisian revolution and the wider Arab Spring which was triggered by the self-immolation of the Tunesian street vendor Mohamed Bouazizi who protested the confiscation of his wares and the harassment and humiliation that was inflicted on him by government officials.

Many variants of this simple power-to-take game have been studied, for example, by having participants earn their income first, by measuring physiological responses and their correlation with self-reported anger, by checking the impact of the cost of destruction and of the amount of income at stake (up to more than a month income), by investigating the role of the verbal expression of emotions, and the effect of having groups with internal discussion instead of individual players. Corroborated by substantial field-empirical and historical evidence, the results of these experiments are supportive of the *conclusion* that

appropriation involves a significant emotional hazard of anger-induced destruction of resources. People are willing to do so even if they know that the appropriator will get what he or she claimed and will never learn about their destruction. The conclusion is that, in contrast to what is suggested in the textbooks, the absence of substantial welfare losses in case of *lump-sum taxation* cannot be taken for granted.

In fact, the *role of affect* in political economy is much bigger, not only because emotions may also play a role with the expenditure of what is appropriated, but because they are crucial in the instilling, internalization, and maintenance of *social norms*. In this context, one should think of the role of feelings towards educators as norm senders, emotions triggered by their reward for good behavior and punishment for bad behavior, and, finally, the anticipation or experience of shame or pride when a norm is violated or adhered to, respectively. When internalized, social norms entail preferences with an intrinsic motivation just like a standard preference for goods or income.

A potentially relevant norm in the context of appropriation is *fairness*. Interestingly, experimental evidence regarding the power-to-take game suggests that destruction of resources in response to appropriation is not triggered by a fairness norm, but by frustrated expectations. In the appropriator's behavior, on the other hand, fairness beliefs do seem to play a role. If the game is one time repeated, takers who experience positive destruction decrease their take rate in the next round if and to the extent that they experience shame or guilt. This effect is modulated by the gap between their previously chosen take rate and what they consider to be a fair take rate, as it affects the intensity of these social emotions. Thus, the anticipation of shame or guilt due to a fairness norm may intrinsically motivate appropriators to restrain themselves, in order to avoid the hedonic cost of the emotional experience. Of course, in principle such norms can also play a role on the responder's or taxpayer's side, providing an intrinsic motivation to "render unto Caesar….", while at the same time entailing a moral hazard to be reckoned with by the taxman. Note, however, that norms can be influenced by educators, which leaves room for intervention.

We have seen that lump-sum appropriation may lead to substantial welfare losses. Nevertheless, it can be a highly attractive activity to vie for. For, note that with the above percentages of taking and destruction a taker would gain an extra 50% of resources, while as responder (taxpayer) about 70% would be lost. This encourages political competition to get into the Caesar position, which means that additional welfare losses can occur because of the resources that will be spent on the competition. Juan Lacomba, Francisco Lagos, Ernesto Reuben and I have studied the consequences of this rent-seeking with a *contested power-to-take game*, where the two players first can spend resources to improve their probability of getting into the taker position, and the winner subsequently decides how much to take from the remaining resources of the defeated (the responder). There is only one escape, *peace*, which requires that both players completely refrain from competition, that is, invest zero resources in the contest, in which case both players keep their resources. The game is

repeated for several rounds, but participants are rematched with a different counterpart in each round (a so-called strangers design).

Consider first the case of *Total Conquest* where the defeated cannot respond at all, not even by destroying resources. Standard homo economicus theory offers stark predictions, namely, that no peace will occur, that 50% of the resources will be spent (and, thus, wasted) on the contest, and that take rates will be equal to 100%. We find indeed that peace never occurs and that take rates are mostly 100%. However, in contrast with the predictions, a lot more is wasted (namely, about 65% of all resources), and conflict expenditures escalate over time. This wasteful expenditure from both sides reminds of John Stuart Mill's statement in his *Principles of Political Economy* that (I quote): "it is lamentable to think how great a proportion of all the efforts and talents in the world are employed in merely neutralizing each other". As a result, takers end up with net-earnings of only about 75% of their original resources and their counterparts are left with only a mere 1% of their original resources. Even though there is no direct welfare loss of taxation in this case due to the absence of an option to destroy resources, competition for the power to take generates an enormous and increasing welfare loss of on average 65% of all resources, leaving the contestants with much less than they started out with.

Interestingly, with a nod to Machiavelli, arming the defeated with the possibility to destroy their resources – a case called *Resistance* – turns out to be welfare improving for all. Although, again, peace never occurs and conflict escalates over time, in this case conflict expenditures are 20 percentage points lower and both contestants end up earning more than in Total Conquest. The reason is that even though destruction now occurs, its threat lowers the take rate and thereby also the attractiveness of investing in the contest. Nevertheless, again, contestants leave the competition with much less than they started out with, namely, takers with only 80% and their counterparts with only 14% of their original resources.

All in all, our experimental results regarding the power-to-take game show that due to emotional hazard and rent-seeking enormous welfare losses can accompany appropriation. This raises the question whether the taking or its welfare consequences can be modulated. Especially, because the power-to-take game is a *stylized representation* of many forms of appropriation and related contests in the public as well as private sector. Apart from taxation, one can think of monopolistic pricing, principal-agent relationships, warfare against different opponents in empire building, raids by rival communities, or political competition for dominance between groups or parties.

Modulators of appropriation

For modulation of appropriation and its welfare consequences, we need to better understand the drivers of appropriation. I will focus first on the interests of appropriators and subsequently on the role of relationships and groups. The latter will also bring us back to the topic of collective action.

Of obvious importance are the *interests of appropriators*. In my inaugural lecture *Man in the Public Sector* I distinguished a number of reasons why in politics people may promote the interests of others, either directly or indirectly (through group-based policies). Voluntarily, they may do so if they share a similar economic position (like being a capital owner), or perceive a probability ending up that way (like becoming unemployed, a pensioner, or a businessman). Involuntarily, this may happen in two ways. First, they may feel forced to give in to the influence attempts of others via persuasion or pressure, for example, by norm senders or lobbyists. Second, they may experience structural coercion, for instance, from impactful actions by tycoons like Bill Gates.

Although these dynamic determinants of political behavior receive too little attention, in my view, I would like to focus here on one other reason that I referred to in my inaugural lecture, when I said (I quote): "that biologically determined other-directedness cannot *a priori* be excluded, and should at least theoretically be allowed for." Frankly, at the time I didn't consider it to be a potentially important factor. Now, after finding out about the affective tie-mechanism and its neurobiological and genetic embeddedness, my view has changed substantially in this respect. For instance, I see lobbying now in a very different light, with much more emphasis on bonding via interaction, rather than the use of big money and sophisticated strategic information transmission. It explains why people in this business find it so important to be physically present in capital cities and to establish and maintain friendly relationships; contacts are key. As discussed above, with affective ties, interests will be automatically and enduringly taken into account by befriended policymakers. Moreover, experiments on the impact of financial gifts on favoratism, by Malmendier and Schmidt and also by my current PhD-student Max Hoyer and myself, suggest that little money may be needed for that purpose. Incidentally, this may help explain why according to some there is so little big money in US politics.

Modulators of appropriation also exist on the side of those who suffer from it. I will focus here on the influence of *groups and relationships* in power-to-take game experiments. Interestingly, a power-to-take game with two groups (instead of individuals) having to discuss and collectively decide on, respectively, the take rate and the destruction rate, does not lead to different results. What makes a clear difference, though, is when subjects maintain a relationship with each other or decide independently as strangers within a group. For example, in a triadic one-shot power-to-take game experiment with one taker and two either befriended or stranger responders, befriended responders destroy not only twice as much (about 30%) but also two times as frequently (40% of them), even though the take rate is again about 60%. What explains the difference is that friends turn out to be better at

predicting each other's behavior and at coordinating due to the way they emotionally respond to the other's behavior. Compared to strangers, friends get a positive emotional boost if they succeed in coordinating, but feel bad if they punish the taker less than than their friend. The affective social ties model can explain why friends destroy more. The reason is that friends, in contrast to strangers, internalize in their decision the additional utility that the other responder gets from hurting the taker. Even though this enhances the emotional hazard problem for the appropriator, the take rate is unaffected, which is apparently due to an anticipatory failure. All in all, *affective networks* can make a big difference in the welfare effects of appropriation.

For the impact of groups and relationships on contests for appropriation, I start with some recent findings that Ben Loerakker and I got from a repeated contested power-to-take game experiment, with fixed groups of four instead of single subjects as contestants. Each group has a *leader* who contributes to the contest first, while the other members of the group (the followers) move next and simultaneously with their contribution decision. Standard homo economicus theory predicts that leaders will contribute nothing, in an attempt to free ride on their followers, while followers in turn will free ride on each other (neglecting external effects). As a consequence, now 'only' about 20% of all resources are predicted to be wasted on conflict. However, the results show something quite different: in fact, twice as much is wasted (40%), and leaders turn out to lead-by-example by contributing about 15% more than their followers, instead of contributing nothing.

Nevertheless, contest expenditures are 25 percentage points lower than in the dyadic contest that I discussed before, where the waste amounted to 65%. But, consider now what would happen if group members were to *perfectly follow* their leader, as might happen in a perfectly pillarized society with strong bonds between follower and leader. In that case, the competition would become equivalent again to a dyadic contest (now between two leaders), with its much worse welfare consequences, as we saw above.

This would seem to plead against such pillarized societies, with perfectly imitated leaders. Before jumping to a conclusion, however, it should be noted that in the dyadic contest experiment discussed above each pair of contestants met only once, like strangers. So, let's see first what happens if they meet repeatedly and can build relationships as *partners*. Perhaps surprisingly, in that case, our experimental results show the same contest expenditure share of about 40%, which would suggest no difference! That is, on average, repeated interaction between leaders perfectly followed by their group members would seem to produce similar results as groups with leaders that are not perfectly followed. Averages can be very misleading, though, as turns out to be the case here. A disaggregated analysis shows that in the dyadic case there are *two distinct types of contestants*. One type shows the socially bad behavior observed above with strangers, characterized by escalating conflict, large welfare losses, and no peace at all. The other type, however, which forms about 34% of all pairs of contestants, shows very different behavior. Contest expenditures

are now about 90% less and longlasting peaceful relationships, with no wasteful expenditures at all, are attained. Remarkably, peace typically happens after some initial conflict when one contestant stops spending on the contest altogether and the other – who then wins for sure – responds by choosing a low take rate. With the affective social ties model, but not so easily with other existing models, it can be understood why selfless behavior like this promotes a peaceful relationship as it helps generating a positive tie that de-escalates the conflict.

In these contests leading to peace, participants succeed by reaching out first and then adapting to what happens next. Although the contest at stake is incomparable in its complexity and in many other aspects, our findings remind me of a recent interview with former Mossad director Efraim Halevy that appeared in a Dutch newspaper (NRC, Dec. 10, 2015). In response to the question what stance Israelis should take in their conflict with the Palestinians he said (I quote, translating from Dutch): "Who wants peace has to reach out his hand. (…) That changes the perception, that is very important. It would give the other party the chance to make steps in its turn to decrease the tensions. (…) We want to end all rethoric and reach out our hand. Nine times out of ten they won't take it, but we have a chance of one in ten that it will work."

In summary, in case of appropriation contests between social groups, non-cohesive groups may be socially preferable, because of lower conflict expenditures with decentralized decisionmaking, thanks to free riding. With very cohesive groups, where leaders are perfectly followed by their group members, our experiments suggest that there is a good chance that escalation of conflict occurs with much worse consequences. On the other hand, it turned out that there is still a chance of 1 in 3 in that case that outcomes are way more beneficial to all. Not only is longlasting peace achieved, with no wasteful expenditure at all, but also payoffs are higher than even a winner of a contest would obtain.

This type of contest between cohesive groups with peaceful highly centralized decisionmaking reminds of Lijphart's theory of pacification in a pillarized society through bridging leaders ('elite cartels'). According to the political scientist Lijphart his theory characterized the Netherlands between 1917 and 1967. For a society split into hardly interacting groups with different religious, ethnic and/or ideological backgrounds, this may be an optimal outcome. Nevertheless, relationships at the top may turn sour with very bad social consequences, also because it seems likely to produce social groups with a locked-in, gated-community type of character, where stereotyping and outgroup hatred can flourish. Bridging at a lower social level, between the followers of the different groups, may be harder at first but more effective and socially preferable in the longer run, because it fosters ingroup-outgroup merger and thereby convergence of interests. Importantly, the social psychologist Pettigrew and others have shown that repeated interaction and engagement with individual outgroup members forges emotional bonds, and thereby improves attitudes, that in turn generalize to the larger outgroup. These findings are in line with the affective

tie-mechanism and its generalization discussed above. Subsequently, these attitudinal changes are then also likely to spread via the affective networks of those involved within their own groups.

I come to a conclusion. I have highlighted the role of emotions and affective networks in political economy, and the use of experiments and models in trying to understand behavior. A key aspect is that people have the brainware for context-dependent prosocial (moral, cooperative) as well as antisocial (aggressive) behavior. There are four important mental mechanisms in this respect. First of all, we have the capacity to empathize with others, to know and share others' feelings. Secondly, our Theory-of-Mind capacity enables us to understand the intentions and beliefs of others, which comes in handy for strategic behavior towards others. Thirdly, we have emotions providing an important commitment device, in particular, via the internalization of norms. And, finally, we have the capacity to develop bonds with others through an affective tie-mechanism, which makes us feel committed to care about the welfare of others, either positively or negatively. As a consequence, our social preferences adapt over time to our social interaction experiences, in sharp contrast to the standard assumption of fixed preferences in economics. This is not trivial. Not only because it pleads for a more prominent place for dynamic analysis, but also because it implies that we can influence preferences through appropriate forms of social architecture and education. It further implies that the so-called Lucas critique holds more generally. People not only adapt their behavior to changes in government policies, given their preferences, but also their preferences. Welfare analysis has to allow for changing utility functions due to the dynamics in affective social networks. This also holds for businessmen, as Adam Smith pointed out in his *Theory of Moral Sentiments*: "Colleagues in office, partners in trade, call one another brothers; and frequently feel towards one another as if they really were so. Their good agreement is an advantage to all (…)." Thus, for example, if concentration in an industry is allowed, regulators should anticipate the possibility of bonding between the few remaining players, which may substantially reduce the effectiveness of anti-cartel and insider-trading measures because the benefits can be extended tacitly, requiring neither an explicit agreement nor compensation (at least, not directly).

The research that I reported on above appears to offer a new perspective on political economy that is relevant for a wide array of issues, like taxation, the provision of public goods, political participation, industrial organization, migration and integration. It has also convinced me that political economy is now at a crossroads, either it continues its trodden but affectless path in splendid isolation, like all the other relevant disciplines for understanding decisionmaking, or it ventures the ascent to an experiment-based decision science. I would opt for the latter, and, in that context, I would like to take the opportunity to plead for the integration of essential knowledge from all behavioral sciences into a research master and institute by the name of: "ASCent for Decision Science". "ASCent" could and maybe should stand for "Amsterdam Spinoza Center", but "A Spinoza Center", or

simply “Ascent”, might do as well. It’s time for the ascent of homo economicus, out of the cave!

Ladies and Gentlemen,

I started out as a student of mechanical engineering at Delft University of Technology, but discovered that I was more interested in the nuts and bolts of human behavior. Fortunately, the at the time lenient public grant system for students allowed me to make a second choice. I decided to study economics because of its breadth, which seemed to leave a lot of room for further specialization. My alma mater, this university, gave me indeed the opportunity to spread out my intellectual wings. I picked up an early interest in political economy, which was, no doubt, fostered by the intellectual climate of the Sixties. It stimulated me to include sociology and social psychology in my studies, where I became particularly fascinated by the work on group dynamics. Later, with my doctoral work, I was very lucky to have Bernard van Praag as my supervisor, at the University of Leiden, because of his open-mindedness towards the social sciences and his research approach and interests, which brought me also into contact with Jan Tinbergen and his work on economic policy.

Basically, the way I have filled in my professorship in economics, in particular public economics, for more than 30 years, is a reflection and further development of the insight that it is not very productive to neglect the findings of other behavioral sciences. Some may have questioned the relevance of my work for Public Finance or Public Economics. I hope that my lecture today has clarified my take on this. Spinoza has been a great inspirator for me in this respect.

What I also learned while doing my doctoral research at Leiden is the importance of a research group because of the stimulating intellectual buzz and pleasant social climate that it can generate. At the time, such groups hardly, if at all, existed in economics faculties. Of similar importance I have found working with my PhD-students, and it is a great pleasure to witness their own development, most of them inside but some also outside academia. I am very pleased that many of them are here today.

Members of the Board, and Dean of the Faculty of Economics and Business,

It was a real pleasure for me to fulfill the professorship I had. I am especially grateful, furthermore, for the five-year extension of my appointment that you offered me. It enabled me to continue my research in Neuroeconomics within the research priority area Brain and Cognition, hosted by the Cognitive Science Center Amsterdam, now Amsterdam Brain and Cognition. In this context, I am particularly grateful to Richard Ridderinkhof for having facilitated my venture into the field of neuropsychology and for his collaboration. Of course, it is also good to see that the research and teaching in Neuroeconomics will be continued.

Dear Speakers,

Dear Jan and Joep, thank you so much for your Introduction! I have not written down anything about its contents, because I did not know it at the time of writing. But the fact alone that you were willing to do this is already very honorful to me. Jan Potters has contributed substantially to experimental economics, in particular, through the development under his scientific directorship of the now internationally reputed Center-*lab* at Tilburg University. From the start, and now as its director, Joep Sonnemans has been providing a great input to the success of CREED and its lab. Your multidisciplinary background and cross-disciplinary interests are very natural to me, Joep, including your appreciation for art (except for the art of baking, I am afraid). Furthermore, I take the opportunity to thank again the speakers of yesterday's workshop on political economy for their presentations and presence at this event. I feel very pleased and honered by your willingness to share this with me.

Dear members of CREED, Dear Arthur,

CREED has played a major positive role in my academic life, both from a professional and social point of view. Therefore, I am very glad that Arthur Schram was willing to pick up with me the challenge of starting and developing CREED. Thanks a lot, Arthur, for your companionship and collaboration. The success of CREED in the past 25 years is in no small measure due to your effort and cooperation. Several other people were also important in this respect. In addition to Joep, I especially would like to thank here Theo Offerman. I have cherished the company of many other CREEDers over the years, too many to mention. I would like to make an exception, though, for CREED's great secretaries Claudia van den Bos and Karin Breen. I hope I haven't been too demanding!

Dear Joep,

Thank you so much for taking the initiative to organize this session as well as yesterday's workshop for me! I further greatly appreciate that I can stay affiliated and continue my research with CREED.

Dear Jos and Lara,

I am very happy that you are here. Peace of mind is an important mental state for doing creative research, at least, that is how it works for me. Through your – as well as my late parents' – support and affection, I have been able to exploit my talents and follow my interests. I am very grateful to you for that. Thanks, Lara, also for helping me out in trying to understand the behavior of students in experiments when you were a student yourself. And, Jos, thank you so much for sharing and enriching my life ever since we were students. The best thing I could do was to bond with you!

Thank you all for your attention and I hope to see you at the reception!

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