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Folk-Economic Beliefs: An Evolutionary Cognitive Model

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Abstract

The domain of “folk-economics” consists in explicit beliefs about the economy held by laypeople, untrained in economics, about such topics as e.g., the causes of the wealth of nations, the benefits or drawbacks of markets and international trade, the effects of regulation, the origins of inequality, the connection between work and wages, the economic consequences of immigration, or the possible causes of unemployment. These beliefs are crucial in forming people’s political beliefs, and in shaping their reception of different policies. Yet, they often conflict with elementary principles of economic theory and are often described as the consequences of ignorance, irrationality or specific biases. As we will argue, these past perspectives fail to predict the particular contents of popular folk-economic beliefs and, as a result, there is no systematic study of the cognitive factors involved in their emergence and cultural success. Here we propose that the cultural success of particular beliefs about the economy is predictable if we consider the influence of specialized, largely automatic inference systems that evolved as adaptations to ancestral human small-scale sociality. These systems, for which there is independent evidence, include free-rider detection, fairness-based partner-choice, ownership intuitions, coalitional psy-

chology, and more. Information about modern mass-market conditions activates these specific inference-systems, resulting in particular intuitions, e.g., that impersonal transactions are dangerous or that international trade is a zero-sum game. These intuitions in turn make specific policy proposals more likely than others to become intuitively compelling, and as a consequence exert a crucial influence on political choices.

Folk-Economic Beliefs:
An Evolutionary Cognitive Model

1. The domain of folk-economic beliefs

1.1. What they are

The term “folk economic beliefs” denotes a large domain of explicit, widespread beliefs, to do with economic and policy issues, held by individuals without systematic training in economic theory. These beliefs include mental representations of economic topics as diverse as tariffs, rents, prices, unemployment, welfare or immigration policies, as well as mental models of interactions between different economic processes, e.g., inflation and unemployment.

Our perspective on the origins and forms of folk-economics is based on two major assumptions. First, we argue that folk-notions of the economy should not be described solely in terms of deviations from normative economic theory. This has, unfortunately, been the common approach to the subject. Folk-views are generally described as the outcome of “biases”, “fallacies” or straightforward ignorance. But describing how human cognition fails to work according to some norm of rationality tells us little about how it actually works. Second, we propose to make sense of folk-economic beliefs by considering the environment in which many, if not most, human cognitive mechanisms evolved.

The study of folk-economic beliefs should be distinguished from other domains of investigation. Microeconomics addresses actual choices of agents in conditions of scarcity, independently of whatever mental representations trigger these behaviors in actual individuals, and also of the representations they may form of their behavior upon reflection. Another field, behavioral economics, often uses experimental designs as a way of elucidating tacit motivations and capacities that direct economic choices, in contexts where experimenters can manipulate incentives and information flow between agents (Charles R Plott, 1974; Smith, 1976). Finally, neuro-economics elucidates the brain systems involved in appraising utility and making economic decisions (Camerer, Bhatt, & Hsu, 2007; Loewenstein, Rick, & Cohen, 2008).

The scope of a study of folk-economics is quite different from these three fields. It focuses on people’s deliberate, explicit beliefs concerning economic facts and processes, e.g. that foreign prosperity is good or bad for one’s own nation, that welfare programs are necessary or redundant, that minimal wages help or hurt the poor, that rent controls make prices go down or up, etc.

One should not assume that folk-economic beliefs (henceforth FEBs) have direct and coherent effects on actual economic behaviors. Many FEBs are about macro-economic processes, e.g. the level of unemployment or the need for for-

eign trade or the need for a nation to balance its budget, that are unrelated to people's everyday transactions. Also, even FEBs that do bear on micro-economic realities, e.g. on "fair" prices or wages, may remain insulated from the psychological processes that drive actual economic behavior, as we explain below, which is why people may recommend specific policy outcomes and behave in ways that contradict that choice (Smith, 2008, p. 165).

Figure 1 summarizes the different domains of thought and behavior and the research programs involved.

► □

Figure 1. A summary of the systems and representations involved in forming folk-economic beliefs. External information about economic matters triggers activation of specific mental systems, which results in both economic behavior and explicit folk-economic beliefs. The latter's effects on behavior cannot be assumed. Different fields, represented as clouds, focus on different parts of these processes. The model presented here is about the causal arrow linking specific mental systems to the occurrence of folk-economic beliefs in people's minds.

1.2. Why they matter

Understanding FEBs is of crucial importance, even if they do not govern people's economic behavior, because they play a critical role in political choices. Perceptions of macro-economic developments influence how favorably people view the government and how they cast their votes (Nannestad & Paldam, 1994). The translation of inflation, unemployment and income dynamics into political choices is mediated by people's beliefs about the economy, e.g., Is ris-

ing unemployment affected by government policy? (Peffley, 1984; T. J. Rudolph, 2003). Similarly, economic beliefs underpin people's answers to such questions as, Is it a good idea to increase welfare benefits, impose tariffs on imports, cap rent increases or institute minimum wages? Folk-economic beliefs constitute a largely unexplored background against which most information about policy is acquired, processed and communicated among non-professionals (Rubin, 2003).

1.3. A different approach to the study of folk-economic beliefs

It is a matter of common knowledge that most people, including the educated public in modern democratic societies, do not think like economists (Smith, 2008, pp. 147-166). It is for instance a familiar finding, that people are over-influenced by consideration of sunk costs (Magalhães & Geoffrey White, 2016) or fail to consider opportunity costs (Hazlitt, 2010) in evaluating possible courses of action. More important for social and political debates, people often also express views on economic processes, that seem misguided if not downright fallacious to most professional economists. There is a growing literature documenting this divergence – see e.g. (Blinder & Krueger, 2004; Caplan, 2006; Haferkamp, Fetchenhauer, Belschak, & Enste, 2009; Hirshleifer, 2008; Rubin, 2003; Sowell, 2011; Wood, 2002; Worstall, 2014). However, there is still very little research on why such beliefs appear, and why they are so widespread.

We argue that many folk-views on the economy are strongly influenced by the operation of non-conscious inference systems that were shaped by natural selection during our unique evolutionary history, to provide intuitive solutions to such recurrent adaptive problems as maintaining fairness in exchange, cultivating reiterated social interaction, building efficient and stable coalitions, or adjudicating issues of ownership, all within small-scale groups of foragers.

The inference systems described below are not specified as *ad hoc* explanations for folk-economic beliefs. All these systems have been independently documented by evolutionary biologists, psychologists and anthropologists who focus on such issues as the evolution of exchange and trade, its form in the small-scale societies in which humans evolved, and its consequences for psychological dispositions and preferences that can be observed in experimental studies on individuals in modern societies – for an overview, see Buss (2016). So, we are not proposing a new description or interpretation of the human evolved psychology of exchange, but using prior findings to illuminate the emergence of folk-economic beliefs in modern contexts.

1.4. Models of folk-economic beliefs are not normative

The model described here is emphatically not a normative proposal. That is, we do not intend to suggest that there is a right way to consider economic processes, and to evaluate folk-economic beliefs in terms of their validity or coherence. This deserves mention, for two reasons.

First, as discussed below, most descriptions of these beliefs, in the literature, were originally motivated by the realization that people do not think like economists, and that they often commit what trained economists would describe as fallacies. By contrast, we argue that this is not a promising way of approaching cultural beliefs in this domain, as the validity (or lack thereof) of these beliefs do not explain their spread.

Second, because FEBs are politically consequential, readers may wonder whether studying them is by itself a political project. That would be the case if, for instance, widespread beliefs were contrasted with a supposedly true picture of the economy, and if that picture was associated with a particular kind of political project. But we suspect (and to a certain degree, the evidence confirms) that individuals of all kinds of political persuasions are equally like to entertain beliefs that are, in some sense, misguided or incoherent.

Indeed, one could argue that the epistemic value of FEBs is largely orthogonal to their political import. That is, the economy is not a political end in itself but a political means to ends that are essentially contested. In principle, even completely misguided FEBs might give rise to outcomes that are, by some other standards, “good” or “just”, at least as far as some specific social group is concerned.

Our more general point is that we believe that the question of whether FEBs are correct or incorrect is orthogonal to the importance of studying them. Few individuals receive formal training in economics and, hence, if they happen to hold correct beliefs, that is as much in need of an explanation as if they generate incorrect ones.

2. Some folk-economic beliefs and possible explanations

Evidence for folk-economic beliefs is still scattered and unsystematic. Some FEBs are widespread and well-documented, either through surveys of attitudes like the General Social Survey (General Social Survey, 2011), or by more specific, smaller-scale investigations like the Kaiser Foundation’s *Survey of Americans and Economists on the Economy* (Kaiser Foundation, 1996). Others are less systematically documented, being inferred from the platforms and common phra-

seology of political operators, and from common journalistic discourse (Wood, 2002; Worstall, 2014).

2.1. Examples of folk-economic beliefs

In the following, we present a few examples of widespread beliefs about the economy, selected for their potential influence on political choice. Given the fact that such beliefs are often expressed in vague or emotional terms (e.g., “markets are bad for society”, “trade will make us poorer and others richer”), what we propose here are, by necessity, reconstructions of possible beliefs as implied by people’s explicit statements or questionnaire responses.

[FEB 1] International trade is zero-sum, has negative effects

The notion is expressed in many forms in everyday conversations, in political discourse, and was also a recurrent theme in early political economy (Hiscox, 2006). This belief may take many forms. For instance, trade is said to create unemployment at home, because foreigners instead of locals are making the things we need (Wood, 2002, pp. 53-55). Also, it is claimed that a nation should always try to export more goods than it imports (Worstall, 2014, pp. 29-32). This belief is often associated with the assumption that the wealth of nations is the outcome of a zero-sum game. As a consequence, the fact that foreigners profit from trade entails that “we” are losing out. Consistent with this assumption, many people believe (against possible comparative advantage) that trade cannot be beneficial if “we” import goods that we could manufacture ourselves (Baron & Kemp, 2004, p. 567). After the 2008 recession, many Americans interpreted increased unemployment as an effect of international trade, and feared that continued trade would worsen their conditions (Mansfield, Mutz, & Brackbill, 2016).

[FEB 2] Immigrants “steal” jobs

Beliefs about the negative economic impact of immigration lie at the center of many policy debates. It is a consistent finding among political scientists that immigration, especially of low-skilled immigrants, is viewed as threatening (Hainmuller & Hiscox, 2010) and a common formulation is that immigrants “take our jobs” (Simon & Lynch, 1999). This view is associated with the assumption that there is a fixed quantity of jobs to share between people (Wood, 2002, p. 23; Worstall, 2014, p. 75).

[FEB 3] Immigrants abuse the welfare system

Another, almost diametrically opposite but equally widespread belief is that immigrants are a fiscal burden on the welfare system, using up common resources (Sniderman, Petersen, Slothuus, & Stubager, 2014). So, immigrants are intuitively viewed as free-riding both on the jobs “we” created and the welfare systems “we” paid for (Alesina & Glaeser, 2004). Given these beliefs, co-occurrences of immigration and fiscal stress can be viewed as causally linked, with important consequences in terms of both policy opinions and of holding immigration-friendly politicians accountable on election day.

[FEB 4] Necessary social welfare programs are abused by scroungers

Welfare programs, e.g., unemployment benefits, are the object of apparently opposing economic beliefs (Aarøe & Petersen, 2014; Alesina & Glaeser, 2004). Experimental studies show the coexistence of those contrary beliefs within individuals. On the one hand, welfare programs are viewed as desirable insurance schemes against unavoidable, essentially random misfortune. On the other hand, unemployment benefits are widely viewed as encouraging laziness and a culture of dependency (Aarøe & Petersen, 2014; Kameda, Takezawa, Tindale, & Smith, 2002).

[FEB 5] Markets have a negative social impact (“emporiophobia”)

Paul Rubin (2014) coined the term “emporiophobia” for the generally negative attitude towards markets observed in many modern societies and documented in many surveys. The belief is that markets as such produce negative outcomes for most participants. Surveys offer evidence that many people, against economists, do not see markets as the encounter of buyers and sellers who mutually benefit from trade, but as a place of struggle between partners with unequal bargaining power. The anti-market attitude may also contribute to the rejection of market solutions for the allocation of “sacred” goods, like organs or children in need of adoption. Many people seem to consider more arbitrary allocations (lotteries, first come first served) as not just more fair than auctions, but also probably more efficient (Fiske & Tetlock, 1997; Tetlock, Kristel, Elson, Green, & Lerner, 2000).

[FEB 6] The profit motive is detrimental to general welfare

The profit motive is seen as an attempt to extract more from transactions than would be warranted by “fair” pricing. That is why there is a tendency to see private firms as less “caring” than non-profits, and therefore more likely to

create negative externalities (Bhattacharjee, Dana, & Baron, n.d.). One version of this belief is that there is a special class of “excessive” profit, that differ from the regular or fair allocation of profit to businesses (Wood, 2002, pp. 10-12). Related to this assumption is the notion that regulation is required to limit the excesses of profit-driven businesses (Hirshleifer, 2008). In general, then, the belief seems to be that if most economic actors act on the basis of maximizing their profits, non-economic social domains will be negatively affected, e.g., by externalities such as pollution, or more generally through a decrease in solidarity, social trust, etc. Against Adam Smith, the notion that private self-regard creates general welfare seems to be unintuitive (Rubin, 2003).

[FEB 7] Labor is the source of value

This is the assumption that the amount of labor necessary to produce a good is an essential (or the only) factor that determines its “value”, a (generally undefined) quantity that is not necessarily expressed by market price. This is not often expressed in such general terms. But the proposition is implicit in many widespread beliefs about labor and wages (Wood, 2002, pp. 175-178; Worstall, 2014, pp. 15-17). It is also present in opinions on the unfairness of low wages for hard or unpleasant jobs, especially those involving hard physical labor.

[FEB 8] Price-regulation has the intended effects

The belief is that regulation generally does what it is supposed to do, as government policy can direct the economy towards desired results (Hirshleifer, 2008; Wood, 2002, p. 77). For example, in the United States, many cities imposed rent-control in the 1960s – and such measures were a major item in politicians’ platforms (Dreier, 1999, p. 211) – with the goal of creating ample supply of cheap housing, see Schipper (2015) for similar process in Israel. The FEB here is that such regulation efforts will work as intended, e.g., that rents will stay low after the imposition of rent-control, or that minimum wages can affect wages without affecting the demand for labor (some people even think that the latter measure could boost employment rates (Haferkamp et al., 2009, p. 533). More broadly, regulation is often seen as an efficient way to protect people against undesirable market dynamics. Chinese respondents for instance believe that China was spared the worst effects of the 2008 downturn by its government regulations (Yuen & Greene, 2011).

*

This is only a short list of widespread folk-beliefs about the economy. As there is very little study of such cultural beliefs as of yet, we have scant evidence

for the relative cultural spread of each of these FEBs, and of possible associations between them and various social or cultural variables. The beliefs in question may well vary between social classes, cultures, age-groups, etc. One aim of this article is to demonstrate the importance and theoretical interest of this domain of cultural beliefs and motivate more detailed empirical research in the domain.

2.2. Common explanations: ignorance, self-interest, biases

There are three main ways of explaining the divergence between laypeople's and economists' views, in terms of ignorance, self-interest, or as the outcome of specific biases that affect people's perception of economic facts.

2.3. Lack of economic knowledge or training

The ignorance hypothesis simply assumes that non-normative views stem from a lack of relevant information, similar to widespread ignorance in the political domain, long lamented by political scientists (Converse, 1964). It is certainly true that most lay-people are unaware of many fundamental principles of economic analysis. For instance, if people knew some rudiments of price theory, they would not be surprised that useful water is much cheaper than useless diamonds. If they knew about comparative advantage, they might see international trade in a different way (Haferkamp et al., 2009). However, this interpretation has one major defect - it predicts that people's common views will be non-normative, but it does not predict that they will be non-normative in any particular way. Not knowing about a domain would predict random, vague or non-existent opinions, as in popular conceptions of quantum mechanics, rather than the specific set of beliefs observed (Caplan, 2008, pp. 9-11).

2.4. Self-interested beliefs

If beliefs are not random, that may be because they are influenced by people's perception of their interests. In this view, people adopt views are the ones that would justify more resources being apportioned to them and less to their enemies or competitors (Dahl & Ransom, 1999). One difficulty with this interpretation is that it only accounts for some of the beliefs described above. It can explain, for instance, how industrial workers in the US might feel they will lose out if their jobs move to China, and therefore consider that protectionism is overall a good thing. But beliefs are sometimes less clearly connected to self-interest. For instance, many people feel that markets are bad, even though larg-

er, more competitive markets provide them with cheaper goods, which is clearly in their interest. So, self-interest is at best a very partial explanation, and in general is not a straightforward predictor of economic beliefs, or indeed of political choices (Caplan, 2008; Green & Shapiro, 1994). It should be noted that one type of interest that does seem to explain some variation in FEBs is partisan interests. During economic downturns, for example, people are much more likely to ascribe the government responsibility if they identify with the opposition party than with the government party (Bisgaard, 2015; Bisgaard & Slothuus, forthcoming). However, while partisanship provides a motivation to reach certain conclusions (e.g., "the government is responsible for this economic downturn" or "the government is *not* responsible for this downturn"), the question still remains how people generate the particular beliefs about the workings of the economy that allows them to reach their desired conclusion.

2.5. Cognitive biases

Finally, another alternative to the knowledge-gap is to consider that people's views are the outcome of specific biases. The term denotes tacit patterns of reasoning that orient people towards a limited set of conclusions from the evidence. There is a vast psychological literature for reasoning biases (Gilovich, Griffin, & Kahneman, 2002). For instance, the "confirmation bias" is the tendency to notice and remember instances of the hypotheses we hold, and to ignore other cases as noise, with the result that prior assumptions seem ever more strongly confirmed.

In the domain of beliefs about the economy, Bryan Caplan for instance identified an anti-foreign bias (what is good for foreigners is bad for us), an anti-market bias (inability to see how markets would turn private greed into a social good), a make-work bias (if people work more, there will be more wealth) and a pessimistic bias (economies are heading towards less prosperity) (Caplan, 2008). In a similar way, Haferkamp et al. argue that the divergence between economists' and lay-people's views does not reduce to self-interest or ignorance, but results from multiple biases, like the well-documented status-quo bias and omission bias (doing something detrimental is worse than not doing something beneficial) (Haferkamp et al., 2009, p. 530). Finally, people's selection of economic beliefs often reflects own-side partisan bias (Bisgaard, 2015).

Models based on identifying particular cognitive "biases" have the merit of taking seriously the fact that the emergence of these beliefs may lie in the way information about the economy is processed in human minds, which is certainly the right starting point. However, we propose that the study of folk-economic

beliefs should move beyond a description on terms of fallacies and biases. One major problem with bias-oriented accounts of cognitive phenomena is that a bias is often simply a re-description of the empirical phenomenon under investigation (Gigerenzer, 1991; Gigerenzer, Todd, & ABC Research Group, 1999). For instance, when it is observed that people attend more to more recent and vivid information, this is explained via an “availability heuristic” that simply stipulates that people attend more to more recent information. In a sense, this is fine; after all, science requires the systematization of observations about the world. But explanations require causal models as well.

Within the biological sciences, researchers distinguish between “proximate” and “ultimate” explanations, where proximate explanations describe *how* a biological system works and ultimate ones explain *why* the system exists (Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998; Scott-Phillips, Dickins, & West, 2011). Bias-based models are largely equivalent to proximate explanations. To develop a scientific understanding of folk-economic beliefs, we need to attend also to the level of ultimate explanations, not just because this provides a more complete understanding but also because we will then be able to develop more precise predictions about how the psychology behind folk-economic beliefs.

3. Our model: Inference systems, beliefs, cultural transmission

In the model proposed here, the emergence and spread of folk-economic beliefs is influenced by specific intuitions about interpersonal exchange. These are not the outcome of explicit scholarly training. Nor are they the simple consequence of persuasion from political elites (politicians, journalists, pundits etc.), or the straightforward absorption of particular cultural values. Rather, because of evolution in the context of small groups with intensive exchange, humans have developed an intuitive psychology of exchange, for which there is independent anthropological and psychological evidence (Cosmides & Tooby, 2015a). This psychology consists of a collection of highly specialized inference-systems, each of which is designed to solve one kind of exchange problem recurrent in our ancestral environments.

3.1. Properties of domain-specific inference systems

We can describe the mind as consisting of many distinct, specialized systems, each of which corresponds to recurrent adaptive challenges in human evolution, attends to limited domains of available information, is organized

along specific inferential principles, orchestrates neural structures in a specific functional manner, and is the outcome of a specific developmental pathway (Boyer & Barrett, 2015; Cosmides & Tooby, 2015b; Hirschfeld & Gelman, 1994).

A few examples may help illustrate the relevant functional properties of this broad class of cognitive systems. In the auditory stream, the sound events identified as instances of lexical items are handled by a parsing system that assigns various syntactic roles to the different words (Pickering & van Gompel, 2006). In the visual field, some configurations are identified as human faces by a face-recognition system that computes a holistic description of the face, which is then processed by other memory and affective systems (Doris & Margaret, 2008; Kanwisher, 2000; Solomon-Harris, Mullin, & Steeves, 2013). Information from multiple modalities is integrated to compute the extent to which a particular person is attractive as a potential mate (Fink & Penton-Voak, 2002; Grammer & Thornhill, 1994).

However different the domains, there are some important functional properties common to these systems:

[a] *Specific input format.* The face-identification systems respond to visual displays that include points or lines interpreted as eyes and mouth. Any such elements presented in the appropriate configuration trigger the system, which is why cartoons and other stylized renditions of human faces activate it, while displays with scrambled features, or features in the wrong alignment, do not. The parsing system only responds to words in the stream of speech. Other sounds are not processed. Sexual attractiveness computations only consider very narrow aspects of information about a person, e.g. the pitch of the voice rather than prosody, skin-reflectance (an index of youth) rather than skin-tone, facial symmetry rather than facial length, etc. In general, then, domain-specific inference systems may ignore information that might be relevant to an organism, but fails to meet the input conditions.

[b] *Automatic activation.* Specialized inference systems are neither initiated nor stopped by deliberate intentions. Once information with the appropriate input format is detected, the systems proceed to produce the relevant inferences, which are then passed on to other inference systems.

[c] *Specific inference rules.* Each system operates on highly specific inferential rules. The computational principles that assign words to their syntactic roles, are found only in that domain, and the same goes for the matching between faces and memories about persons, or the computation of sexual attractiveness.

[d] *Unconscious computation*. The operation and inference rules of each system are generally outside conscious access. Only some outputs of these computational systems can be accessed, like e.g. the meaning of a sentence or the general attractiveness of an individual.

[e] *Intuitive output*. The output of specialized inference systems, when consciously accessible, consists in *intuitions*, that is, a description of a particular situation or a motivation to behave in a particular way, that do not include any indication of the computational steps that resulted in that particular description or motivation.

3.2. Intuitive systems output can lead to reflective beliefs

It is important here to keep in mind the difference between intuitive output on the one hand, and reflective representations on the other (Sperber, 1997). Reflective representations add information to intuitions, explicate them, extend or restrict their scope, offer a comment on the intuitions or link them to specific sources, as in, e.g., “the reason this sentence is strange is that there is no verb”, or “this person has the same round face as Humpty Dumpty”, or “it is sad that this attractive person has a bad personality”, etc. (Cosmides & Tooby, 2000; Sperber, 1997, 2000).

Most of our “folk-theories” of particular domains consist of explicit, conscious reflective beliefs about our intuitions. That is why we can better understand the diffusion of beliefs in social groups, if we follow closely the interaction between intuitions delivered by specialized inference systems, on the one hand, and their reflective interpretation, on the other.

Here, again, examples may be of help. Humans minds include an intuitive physics, a set of assumptions that helps us predict the trajectory of objects, expect solid objects to collide when their trajectories intersect, etc. These expectations appear early in infancy long before language acquisition (Baillargeon, Kotovsky, & Needham, 1995; Spelke, Phillips, & Woodward, 1995). But we can also entertain explicit thoughts that (to some extent) explicate and comment on these intuitions, e.g., a belief that heavy objects have more momentum than lighter ones. Some of these reflective beliefs are wrong, others too vague to be even wrong, and some are in agreement with physical science (Kaiser, Jonides, & Alexander, 1986). In the same way, we have a set of intuitive biological expectations, e.g., that all living things come in exclusive, taxonomically ordered categories (Atran, 1995), and that they are propelled by internal energy sources (R. Gelman, Durgin, & Kaufman, 1995; Tremoulet & Feldman, 2000). But we also have reflective and explicit beliefs, e.g., that each species has unique essen-

tial properties that cannot change (S. A. Gelman & Wellman, 1991), that there must be some “catness” about cats that makes them what they are. Here the intuitive expectation (all cats share external features, their behavior is highly predictable, etc.) is explained by the reflective belief, that postulates a hidden, undefined essence inside organisms of the same species.

Folk-economic beliefs are widespread, culturally transmitted, explicitly held reflective beliefs about economic processes. These are to be distinguished from the intuitive thoughts that emerge as a result of the operation of specialized intuitive systems. We reserve the term “folk” for beliefs held by lay-folk as a result of the interaction between information about the economy, and the operation of some inference systems. (This is in contrast with some parts of the psychological literature, where the term “folk-” has been sometimes, confusingly, used to characterize *both* the products of intuitive inference systems, and the cultural beliefs that emerge as a result of their operation.)

3.3. Why we should not expect consistency or coherence in FEBs

Explicit reflective beliefs may be extremely vague in their implications. One may hold that there *must* be a special essence present in all cats that makes them different from dogs, without specifying what that essence consists of – in fact that is the most common form of essentialism (S. A. Gelman, 2004).

Also, reflective beliefs may be inconsistent or incoherent, mostly because they come in a meta-representational format. In contrast to the output of intuitive systems, e.g. the intuitive belief that “there is a cat here on the mat”, reflective beliefs consist in comments on intuitions, e.g., “it is true in some sense that ‘the market is bad’”. Meta-representational format allows one to be committed to a belief, without the contents of the belief being processed in detail (Cosmides & Tooby, 2000; Mercier & Sperber, 2009; Sperber, 1997). That is the case for mystical or religious statements, e.g., “the true path is not a path” or “three persons are one being”, which people can hold to be true, in the form “the proper interpretation of ‘p’ is true”, without processing their contents (Mercier & Sperber, 2009; Sperber, 1997).

This applies to the domain of folk-economic beliefs as well. A belief that markets are socially negative can be held true, without triggering specific representations about, e.g., how markets would decrease social welfare, in what domains of activity, to what extent, through what economic mechanisms, etc., as long as it is held in a meta-representational format, e.g., “It is true in some sense that ‘markets are bad for society’”. For the same reason, one can hold that meta-representational belief, and also hold other beliefs that may seem to con-

tradict it, e.g. “it is a good thing that we have many butchers here, so they have to keep low prices”. Finally, if folk-economic opinions consist of reflective, meta-representational beliefs, different beliefs can be held in relative isolation from each other, without ever being integrated in a general theory of the economy. So, we should not expect precision, consistency or integration in the domain of reflective folk-economic beliefs.

3.4. Proposed mechanism: intuitions, beliefs, cultural transmission

Folk-economic beliefs are cultural beliefs – which simply means that they are represented in roughly similar ways in the minds of different individuals in a group, as a result of communication between individuals. Folk-economic beliefs are communicated, between laypeople, but also between media and their customers, and between political entrepreneurs and the public. That is why it is important to consider the mechanisms that lead to their cultural spread, that is, the extent to which they are likely to be entertained, in roughly similar ways, by different minds.

An essential component of cognitive theories of cultural transmission is that prior psychological assumptions and expectations make certain representations easier to acquire, store and communicate than others (Boyd & Richerson, 1985; Sperber, 1991). Cognitive dispositions make people transform input in such a way that it is more similar to the types that match these dispositions, an “attraction” process that results in the spread of highly particular mental representations (Claidière, Scott-Phillips, & Sperber, 2014).

In the following pages, we document the existence of various intuitive inference systems dedicated to representing social exchange. We then examine how these different systems make particular views of the economy in general particularly easy to acquire and represent, turning them into cultural beliefs.

4. Relevant cognitive systems

4.1. Relevant systems evolved before and outside markets

Evolutionary theory predicts that cognitive systems are geared to solving specific, recurrent problems in environments in which humans evolved. Specifically, what evolutionary theorists call the environment of evolutionary adaptiveness (or EEA) for a trait is a statistical construct, an aggregate of the conditions under which there was selection for or against that trait, weighted for frequency and time. In that sense, the EEA is not a particular time or place, but

a collection of features. As an illustration, we can consider that optimization problems such as hunting, foraging, choosing the best mate, selecting nutritious foods, garnering social support were present, and relevant to fitness, throughout human evolution. By contrast, urban life, mass-communication, rapid long-distance travel and mass-market economies only occurred for a small duration and only in some places at first. So it is more plausible that human minds were selected for systems geared to the first kind of adaptive problems, than to the second.

One feature that is universally prominent in both modern and ancestral human societies is the exchange of goods (e.g., tools, food) and services (everything from back-up in conflicts to help with hunting, foraging, parenting or shelter-building) (Brown, 1991). Developmental psychology studies show that children readily engage in exchange in early years (Levitt, Weber, Clark, & McDonnell, 1985). Exchange provides significant fitness benefits. It allowed our ancestors, as it allows us, to exploit cooperative positive-sum games, engage in collective action and buffer against predicaments such as hunger and injury (Gurven, 2004; Sugiyama, 2004). For us and for our ancestors, engaging in exchange requires the existence of distinct, specialized cognitive mechanisms (Cosmides & Tooby, 1992, p. 177ff.), including mechanisms for estimating costs and benefits of goods and services for the self and other; for comparing them in an abstract format (equivalent to utility in the vocabulary of economics); and for motivating exchange when the benefits of exchange exceed the costs for oneself.

The human mind, in other words, contains a rudimentary exchange psychology, evolved by natural selection to help facilitate transactions. While it evolved within ancestral small-scale hunter/gatherer groups, the cues inherent in modern markets economies (transactions, bargaining, prices, etc.) also bring it online. However, market economies are a novelty at the scale of biological evolution, so that we should not expect specific adaptations to their features, as the differences between ancestral exchange and the market are vast (Rubin, 2003).

A crucial difference is that economic activity in non-market societies, and by extension during most of human evolution, does not and did not take place in isolation from other aspects of social interaction. Indeed, the clear separation between economic exchange and other forms of social interaction is a by-product of market conditions (Polanyi, 2001[1957]). Throughout human evolution, most transactions not only affected the agents' welfare, what they gained or lost on the spot, but also their reputation, their social standing, the nature of

their relationship to exchange partners, the extent to which they could rely on others, the cohesiveness of the groups they belonged to, etc. That is why mechanisms for reasoning about exchange are designed to take in a whole range of social considerations that are not relevant in the impersonal modern market.

In the following pages, we examine some of the systems that evolved to facilitate exchange, the evidence for their operating principles, and their potential effects on the perception of modern market phenomena.

4.2. Detecting free-riders in collective action

In any exchange, it is crucial to monitor whether the implicit or explicit terms of the exchange are being followed. For example, if two individuals take turns helping each other forage, does one person provide less help than he receives? To solve this problem, human exchange psychology needs to contain specific mechanisms for detecting and responding to free-riders. There is considerable evidence that humans are in general attentive to potential cheating in social exchange, so that proximate psychological mechanisms are congruent with the ultimate fitness benefit of detecting and deterring free-riders. Indeed, a situation where some agent has taken a benefit without paying the cost for it is psychologically more salient than the opposite situation of an agent paying some cost but not getting the associated benefit (Cosmides, 1989; Cosmides & Tooby, 2005; Gigerenzer & Hug, 1992; Sugiyama, Tooby, & Cosmides, 2002). Also, information that some agent received benefits from cooperation without contributing triggers punitive motivations, as a way of depriving them of the benefits of free-riding (Price, Cosmides, & Tooby, 2002). The ultimate rationale for free-riding detection is to preserve cooperation, including in the future. This would suggest that we do not intuitively classify as free-riders those individuals who make honest mistakes or whom accidents bar from cooperating. Indeed, Delton et al. showed that the intuitive FREE-RIDER categorization is highly sensitive to intentions, rather than just tallying who contributed what to the collective action (Delton, Cosmides, Guemo, Robertson, & Tooby, 2012).

4.3. Partner-choice for exchange

To engage in exchange, one needs to choose among available social partners. Given the possibility of choice, human exchange and cooperation from ancestral times has taken place in the context of competition for cooperation (Noë & Hammerstein, 1994), as each agent could advertise a willingness to cooperate (and signal how advantageous cooperation would be), and could

choose or reject partners depending on their past and potential future behavior (Barclay, 2016; Delton & Robertson, 2012; Panchanathan & Boyd, 2004). Cases of mutualism between species illustrate the efficiency of partner-choice for stabilizing mutually beneficial cooperation, e.g. between cleaner fish and their clients (Bshary & Grutter, 2005). Human communicative abilities allow this kind of mutualism to occur between conspecifics, with reputation as an essential factor in the selection of partners. Agents have access to information about other agents' past interactions, as an index of likely future behaviors. In such conditions, there is of course a cost in engaging with free-riders, but also a cost in not cooperating with an honest partner (in terms of potential cooperative positive-sum games) (Krasnow, Cosmides, Pedersen, & Tooby, 2012; Milinski, Semmann, & Krambeck, 2002).

Competition for cooperation has specific consequences on fairness intuitions in the context of collective action. Given that two (or more) partners contribute equal effort to a joint endeavor, and receive benefits from it, an offer to split the benefits equally is likely to emerge as the most frequent strategy – anyone faced with a meaner division of spoils will be motivated to seek a more advantageous offer from other partners. So, to the extent that people have partner options, the constraints of partner-choice explain the spontaneous intuition that benefits from collective action must be *proportional* to each agent's contribution (André, 2010; André & Baumard, 2011; André & Day, 2007).

The existence of partner-choice based on shared information and reputation may explain why people select partners, in the context of laboratory economic games, on the basis of criteria that may seem economically irrational, but that happened to be ecologically predictive in our environments of evolution. For instance, people prefer partners who express moral judgments in deontic (i.e., “moral” and emotional) rather than rational terms (Everett, Pizarro, & Crockett, 2016). They also prefer potential partners whose faces suggest productivity, prosocial attitudes and relatively high social status (Eisenbruch, Grillot, Maestripieri, & Roney, 2016).

4.4. Exchange and assurance by communal sharing

One important form of social relations is founded on communal sharing, where resources are pooled (Fiske, 1992). This is found to some variable extent in all human groups, particularly in food provision, and seems crucial to social interaction in small-scale societies, especially in foraging economies similar to those in which humans evolved (Kelly, 1995). That is why this form of apparently unconditional altruism has been the focus of so much research in evolu-

tionary anthropology and psychology (Kaplan & Gurven, 2005). A major result of those observations and models is that communal allocations is not the outcome of an indiscriminate motivation to share with others, but follows implicit rules that make sense given the conditions of human evolution.

For instance, band-wide sharing in hunter-gatherer economies is generally confined to game, especially large game, while gathered and extracted foods are mostly shared with close kin. An explanation for this spontaneous preference in allocations lies in the differences in variance in the supply of these goods (Cosmides & Tooby, 1992), as gathering typically produces low-variance resources, in contrast with hit-or-miss hunting expeditions. So communal sharing provides insurance against random bad luck such as the vicissitudes of hunting expeditions (Kaplan & Hill, 1985) or injury that prevents hunters from going on expeditions (Sugiyama, 2004). This is reinforced by the low marginal value of food units when they come in large packages, like big game. Communal sharing, while often presented as including all group-members, is often in fact modulated by past or expected reciprocation. Even where there is a norm of unconditional sharing, those who give more freely also receive more (Gurven, 2004; Gurven, Hill, Kaplan, Hurtado, & Lyles, 2000).

Communal sharing is founded on specific assumptions and principles, distinct from those that govern, e.g., direct exchange or authority-based social relations (Fiske, 1992). The norm of communal sharing is readily acquired by children, and intuitively deployed by adults in the appropriate contexts (Birch & Billman, 1986; Hamann, Warneken, Greenberg, & Tomasello, 2011; Rao & Stewart, 1999). In different places, different sets of resources and occasions are designated as proper goods to share. People notice (and are usually shocked by) the application of one type of inference system to the wrong domain according to the local norms, e.g., offering to pay your friends for coming to dinner, or asking for a discount as a personal favor at a supermarket checkout.

The structure of the psychology for exchange resources through communal sharing implies that if people find that a need is caused by random circumstances beyond their own control, they intuitively represent that need as potentially alleviated through communal sharing. By consequence, they would think it as unfair if others try to profit from this type of need (i.e., turning the exchange into direct form of exchange rather than communal sharing).

4.5. Coalitional affiliation

Humans are special in that they build and maintain highly stable associations bounded by reciprocal and mutual duties and expectations. Such groups –

called alliances or coalitions – may be found at many different levels of organization, such as political parties, street gangs, office cliques, academic cabals, and groups of close friends, and can include thousands or millions of individuals when ethnic or national categories are construed as coalitions (Tooby & Cosmides, 2010).

The psychology underlying coalitional strategies include the following assumptions: a) relevant payoffs to other members of the coalition are considered as gains for self (and obviously, negative payoffs as losses to self); b) payoffs for rival coalitions are assumed to be zero-sum; the rival coalition's success is our loss, and vice-versa; c) the other members' commitment to the common goal is crucial to one's own welfare (Pietraszewski, 2013, 2016). These assumptions reflect two crucial selection pressures operating on human groups: First, that alliances are competitive and exclusive, because social support is a rival good. Second, that resource, status and many other goods are zero-sum and, hence, the object for rivalry between alliances. As consequence, allied agents spontaneously share the intuition that achieving their goal requires avoiding or overcoming opposition from other, similar alliances and coalitions in a zero-sum fashion (Tooby & Cosmides, 2010).

A vast literature in social psychology and behavioral economics documents the proximate psychological mechanisms involved in coalitional situations. For instance, people do indeed consider benefits for the coalition as (presumed) benefits for themselves (Baron, 2001). Second, social psychology studies of in-group favoritism show how very subtle cues of group membership and coalitional rivalry can activate coalitional assumptions. In so-called “minimal group” paradigms, people favor fellow members of an arbitrarily constructed category (Tajfel, 1970). This occurs when the categories in question are construed by participants as groups within which members can reciprocate favors (Karp, Jin, Yamagishi, & Shinotsuka, 1993; Kiyonari & Yamagishi, 2004).

In human coalitions, members monitor each other's level of commitment, are motivated to demonstrate their commitment to the other members, and are also motivated to make defection less likely, notably by making it costly. Monitoring of other people's behavior is frequent, all the more so if the collective action is risky and success is crucially dependent on numbers. Such surveillance is manifest in voluntary groups and associations, and the extent to which monitoring is possible is a predictor of group stability (Hechter, 1987b, pp. 146-156).

4.6. Ownership psychology

For exchange to happen over human evolutionary history, our ancestors needed an elaborate psychology of ownership. Who is entitled to enjoy possession of a good, and to exchange it? Ownership is expressed in all human languages (Heine, 1997); in all human cultures, there is a principled distinction between mere possession and ownership; and ownership is associated everywhere with specific emotions and motivations (Brown, 1991). At the same time, explicit norms of ownership and property rights differ from one place or time to another in terms both of scope (who can own things and what things can be owned) and of implications (what one may do with specific types of property) (Hann, 1998). Surprisingly, despite a long history of legal and economic reflection on property, there are only recent and relatively sparse experimental studies of our spontaneous intuitions about use, possession and ownership (Boyer, 2015; DeScioli & Karpoff, 2015; O. Friedman, 2010).

We must distinguish between intuitions and reflective representations about ownership. Adults and even very young children have definite intuitions about who owns what particular good, in a specific situation. For instance, they generally assume that ownership applies to rival resources (that is, such that one person's enjoyment of the resource diminishes another person's); that prior possession implies ownership; that extracting a resource from the environment makes one the owner; that transforming an existing resource confers ownership rights; and that ownership can be transferred, but only through codified interactions (O. Friedman, Neary, Defeyter, & Malcolm, 2011). By contrast, people's explicit beliefs about ownership are often vague and sometimes incoherent (Noles & Keil, 2011). Also, these explicit, reflective norms often do not even reflect actual legal practices. In fact, people who live in societies with legal systems generally (and often wrongly) assume that the law *must* somehow accord with their intuitions – see Ellickson (1991) for an illustration in the domain of externalities and tort.

In terms of proximate mechanisms, this suggests that the inference system takes as its input information about specific connections between a thing and an agent and outputs an “owner” tag. In particular, this system is highly sensitive to such cues as first possession (O. Friedman & Neary, 2008), but also to information about an object's history (e.g., past possession, transactions between past and present possessor) (Blake & Harris, 2009; O. Friedman et al., 2011), as well as the work invested in the object by its current possessor, as even young

children consider that creative work that transforms an object creates, at least presumptively, a claim to ownership (Kanngiesser, Gjersoe, & Hood, 2010).

5. Effects of intuitive systems on folk-economic beliefs

In our model, folk-economic beliefs are a result of the activation of the intuitive systems for exchange described above (and many others). The processes are illustrated in Figure 2 below. Information about economic processes, from news media, political discourse, from occasional pronouncements by economists, from other individuals, or any other sources, sometimes happens to match the input conditions of some intuitive inference system. As a consequence, the system is activated and produces specific inferences in the form of intuitive representations. These intuitive representations in some cases become the object of explicit, deliberate reflections, which may attribute an intuition to a source, put together several intuitive inferences, or compare them, or provide an explanatory context for intuitions, giving rise to folk-economic beliefs. In this context, it is also worth emphasizing again that a single belief need not be the product of a single intuitive inference system. The more inference systems that are underlying a particular belief, the more cognitive scaffolding it receives.

Figure 2. Illustration of the sequence of cognitive processes involved in acquisition of economy-related information and generation of folk-economic beliefs.

In the following sections, we provide a discussion of the possible connections between specific evolved inference systems and specific folk-economic beliefs – that is, how activation of the systems may make a particular belief received from external sources more natural and compelling. The examples that we draw on are meant as mere illustrations of many potential connections, providing the first small steps towards an empirical research program.

5.1. Explaining FEB1: International trade as coalitional rivalry

We will begin with what we referred to above as FEB1, the statement that international trade has negative consequences. This contains several pieces of information likely to activate specific inference systems. Let us consider a news headline like “China sells more to the US than to Russia”. Selling involves receiving resources and, importantly, resources in this case transit from one nation to another. In psychological terms, nations are “imagined communities”

(Anderson, 1983) or, with the vocabulary presented above, nations are coalitions to the mind and, hence, mention of nations activates the coalitional psychological machinery (Gat, 2006; Hechter, 1987a). Nations are exclusive groups, citizens of a nation are assumed to have common interests, and nations are equipped with armies to fight each other. The activation of this machinery has the downstream consequence, we argue, that Americans will evaluate the transition of resources to China – and, hence, the headline – negatively. As argued above, one key assumption of the coalitional system, once activated about two categories or groups, is that there is a zero-sum interaction between the mutually exclusive groups. As a consequence, there is a strong prior belief that any advantage to another group is detrimental to one's own (Hiscox, 2006). Any information to the effect that other groups are prosperous, or getting better, is equivalent to a threat-cue, indicating that our group stands to lose out.

It is relevant to note how this interpretation of FEB1 (i.e., the disadvantage of trade) is different from the standard “fallacy”-oriented interpretation. According to our view, FEB1 does not occur as a result of any cognitive or intellectual dysfunction. Instead, we argue that the zero-sum assumption is part of the *design* of coalitional reasoning. The resulting motivations are part of the architecture of this system. To maintain stable and efficient coalitions, humans in many different contexts must have assumed that other groups' advantage was a potential loss.

Viewing the “international trade is bad” belief as supported by coalitional psychology does not just explain the belief but also suggests novel testable predictions. In particular, we should expect the view that trade is bad to be particularly attractive when the trading crosses perceived coalitional boundaries. It is predicted to invariably occur in the context of, precisely, debates about trade between *countries*. American consumers may find it intuitive that the US might suffer from Chinese prosperity, but, on this theory, they would find it less compelling that development in Vermont damages the economy of Texas. Similarly, the survival value of the belief might depend on the relationship between the countries. Trading between long-term allies (e.g., trading between Great Britain and the US) should be viewed as less problematic than trading between rivals (e.g., trading between China and the US), even if all else was equal.

5.2. Explaining FEB2 and FEB3: Immigration and the dual activation of the psychologies of coalitions and cheater-detection

In section 2, we outlined two FEBs about immigration. FEB2 is the belief that immigrants “steal” jobs and FEB3 the somewhat contrary belief that “immigrants abuse welfare systems”. While these two beliefs seem inconsistent (how can immigrants both take jobs and unemployment benefits?), they do share a key common assumption, a stipulation that immigrants use up valuable resources that they are not entitled to. This assumption, we argue, is what makes either of these ideas resonate with the evolved psychology of social exchange.

Specifically, the representation of recipients as not entitled to resources receives support from the interaction of two crucial inference systems: a) coalitional psychology, and b) cheater-detection. Immigrants are by definition newcomers to the community. Psychological research has shown that newcomers to groups activate this connection between coalitional cognition and cheater-detection, in particular in situations where group-membership is construed as conferring particular benefits. In such situations, newcomers are typically seen with great suspicion. Cimino and colleagues interpret this in terms of cheater-detection. When new members join a group, they are in a position to receive some of the benefits of membership (e.g., becoming a Marine makes one a respected member of a prestigious military corps), without having (yet) paid any costs (e.g., risked one’s life in action). This combination of features may activate cheater-detection mechanisms, as persons in this situation effectively meet the input criterion of Benefit Received without Cost Paid, which would explain the considerable hostility towards newcomers in many voluntary groups, that is sometimes expressed in the form of painful hazing and initiation rituals (Cimino, 2011). Experiments show that there is indeed an implicit concept of NEWCOMER that motivates such aggressive attitude, even when people consider membership in imaginary groups (Cimino & Delton, 2010; Delton & Cimino, 2010).

The tight relationship between the concepts of nation and coalition (see above) may explain the attractiveness of the statement that immigrants must be free-riders, scrounging on the past efforts of the host community. But, at the same time, the involved psychological systems leave open whether it is on job creation or on the welfare system that immigrants free-ride.

This interpretation suggests new research avenues. The argument is that the public’s intuitions about the economic effects of immigration does not just reflect diffuse prejudice (Stephan, Ybarra, & Bachman, 1999) but is the outcome

of very precise psychological mechanisms that works in tandem with beliefs about jobs, the welfare state, etc., as collectively produced resources. As consequence, it will be difficult for immigrant populations to behave in ways that increase acceptance by the native population. Any involvement with what is construed as a “resource” is likely to trigger intuitions of free-riding – see e.g., (Guimond, De Oliveira, Kamiesjki, & Sidanius, 2010). Furthermore, our interpretation suggests that there is an intimate connection between the perceived motivations of immigrants and the presumed economic consequences of immigration. Only in instances where specific immigrant groups are seen as willing to sacrifice self-interest for collective goods - i.e., the exact opposite of free-riding motivations - should the public view the economic effects as positive.

Finally, this shows that there is no one-to-one mapping from specific systems for social exchange and specific FEBs. When FEBs - sometimes contradictory ones like FEB2 and FEB3 - becomes culturally available, their acceptance depends on the degree to which they resonate with human exchange psychology. In this particular case, it is the dual appeal of the FEBs to both coalitional psychology and cheater-detection psychology that ensures their cultural survival in the minds of the public.

5.3. Explaining FEB4: social welfare and intuitions about free-riding and communal sharing

FEB4 referred to beliefs about the effects of economic investments in welfare programs. In fact, as laid out in Section 2, folk-economic beliefs about these effects consists of two separate and diametrically opposed beliefs. One belief is that unemployment benefit programs for instance lead to decreased economic activity because welfare programs benefits unproductive individuals. Another belief is that, in the long-run, these benefits increase economic activity because they sustain productive individuals during periods of bad luck and, hence, facilitate the transition to new jobs. These opposite beliefs are not randomly distributed. In fact, their distribution demonstrates our key point about the relevance of FEBs: that they are associated with particular political positions. Support for welfare programs is strongly related to the belief that they sustain unfortunate individuals. Opposition to welfare programs is strongly related to the belief that they sustain unproductive – i.e., lazy – individuals.

In our perspective, beliefs surrounding welfare programs – and, in particular, the link between beliefs about welfare recipients' productivity and support for welfare programs – are a key example of how psychological adaptations designed for social exchange shape economic policy views. What is surprising is

not just the existence but also the strength of this link between perceived character of recipients and presumed economic benefits of welfare programs. In one of the most extensive studies of Americans' views on welfare, Gilens (1999) concludes that the perception that welfare recipients are “undeserving” is the strongest predictor of individual-level opposition to welfare programs. This, we argue, is a consequence of the way in which the cues surrounding welfare programs activates mechanisms designed for cheater-detection.

Debates about welfare programs contain a number of cues that should elicit cheater-detection psychology. Welfare recipients are in need, welfare programs provide benefits to the recipients and does so at a cost for the collective. For a mind designed to scan the social environment for cheaters, this particular set of cues automatically raises the question, Have the recipients paid sufficient costs in order to be entitled to these benefits? (Petersen, Sznycer, Cosmides, & Tooby, 2012). Or, more specifically, Are the recipients valuable enough as cooperation partners to be included within the exchange system? This, then, motivates scanning for additional information about the cooperative motivations of welfare recipients, activating either cheater-avoidance motivations (if low) or communal sharing motivations (if high), and in the end, providing an exceptionally fertile soil for infusing economic opinions with beliefs about whether or not welfare recipients are lazy.

This psychological process is one of the more well-studied aspects of folk-economics. The most direct test comes from a series of studies utilizing the memory confusion paradigm. They suggest that welfare recipients are mentally represented by activating the exact same psychological categories that people use to represent cheaters and reciprocators in everyday social interaction (Petersen, 2012). The results show that memory processes confuse lazy welfare recipients with everyday cheaters and unfortunate recipients with everyday reciprocators (but not lazy recipients and everyday reciprocators or unfortunate recipients with cheaters). Participants in these studies even forget whether or not those specific individuals were presented in the context of economically-relevant welfare debates or everyday face-to-face interaction. This process operates in a similar fashion, regardless of people's political ideology, their level of political engagement, and whether they live in a society with an expansive welfare state (Denmark) or a reduced one (United States).

This particular explanation for FEB4 makes sense of empirical findings concerning the relationship between cultural factors and beliefs about welfare. Individuals with liberal or left-leaning views tend to view social welfare recipients as productive individuals. Individuals with conservative or right-leaning views

tend to view welfare recipients as unproductive individuals. Similarly, in social democratic societies, the former belief tends to dominate whereas the latter belief dominates in societies with minimal welfare states. As consequence, cultural explanations have largely dominated the literature. For example, Americans' perception that many welfare recipients are lazy, and the association with anti-welfare sentiments, has been argued to reflect an "individualistic" American culture (Gilens, 1999). Similar arguments have been made with regards to right-wing ideology: that this contains an "ideological script" that binds together perceptions of laziness and welfare opposition in the mind of right-wing individuals (Skitka & Tetlock, 1993). From the evolutionary cognitive perspective, however, this structure is imposed by evolved mechanisms for exchange that are operating flexibly on the available cues. As a consequence, it should be easy to reverse otherwise stably-appearing cultural patterns in welfare beliefs, if the right cues are provided. Research shows that this is indeed the case. Among a sample of Danish political science majors (who should be able to reason ideologically), ideological differences in opinions completely disappear when the participants form views about the deservingness of recipients cast as either lazy or unfortunate (Petersen et al., 2012). Even more dramatically, cultural differences between Scandinavians and Americans in support for the welfare state completely disappear when participants from these populations have to form views about specific recipients. Two sentences of text that contain evolutionarily relevant cues for cheater-detection are enough to displace 150 years of historical experience with two very different welfare systems (Aarøe & Petersen, 2014).

Another insight from the evolutionary cognitive perspective is that people's priority with regards to welfare economy is not so much to ensure a particular overall distribution of resources but more to ensure that resources go to the right individuals. While a popular notion has been that people generally prefer equal to unequal distributions of resources (Fehr, Schmidt, Kolm, & Ythier, 2006), recent research suggests that people are much more concerned with a fair distribution. Unequal distributions are perfectly acceptable, if those who are by-passed are viewed as cheaters (Starmans, Sheskin, & Bloom, 2017).

5.4. Explaining FEBs 5 and 6: Impersonal markets and mechanisms for partner-choice

A common feature across numerous FEBs is the notion that markets are, in different ways, "bad" for general welfare. FEB5 is an expression of what Rubin (2014) called *emporiophobia*. FEB6 referred to the more specific notion that

transactions on the market are somehow “unfair”. There is a common thread in these beliefs, the role of perceived social motivations. In most cases, the perceived negative effects of the market are seen as originating from particular sets of social motivations, believed to be pervasive in market transactions. From a cognitive evolutionary perspective, we argue, these beliefs emerge naturally due to the way market interactions differ from the types of social exchanges we evolved to value.

Specifically, to explain these FEBs, we need to describe in cognitive terms, in what way market transactions are, as is often claimed, “impersonal”. This description combines several features of potential relevance to our intuitive systems. First, people in modern conditions do not in principle need information about their exchange partners, beyond knowledge of their positions (seller, buyer), the particular goods they sell or buy, and their price. Second, there is no expectation that considerations other than price and utility should govern people’s behaviors in such exchanges. That is, you may be interested in patronizing the local stores because that helps keep the town pleasant, but that motivation is clearly extrinsic to the terms of exchange. Third, there is no expectation of reiterated transactions. One can in principle behave in opportunistic ways, patronizing Baker A when his prices are lower and defecting to Baker B when that is more advantageous.

These features all constitute advantages of market transactions from an economic standpoint. Yet, for a intuitive inference systems designed for to established long-term, cooperative exchange, these same features will be interpreted in a different manner, as threat-cues. First, our partner-choice system requires that the parties in a transaction can be identified as specific individuals. In small-scale interactions the balancing of costs and benefits occurs over reiterated exchanges and, in order to predict these long-term outcomes, information about the partner’s reputation and past exchanges are key. Impersonal transactions, in contrast, are often anonymous, and therefore make it more difficult to track the reputation of one’s partners. To a psychology designed for partner-choice, this is likely to trigger an alarm signal – indicating that such a situation should be avoided. Second, strictly impersonal exchange goes against motivations to generate bonds of cooperation with particular individuals, as a form of social insurance. This may reinforce the intuition that impersonal transactions involve, if not danger, at least a missed opportunity. Finally, systems for partner-choice are set up to avoid engaging in exchange relationships with individuals who are much more powerful, in order to avoid exploitation (Petersen, 2013; Trivers, 1971). In modern markets, however, many exchanges are with corporations or

business that seem exceptionally powerful from the perspective of the individual. While these corporations are actually affected by consumer choice, this only occurs at the aggregate level. As a result, each individual can form the perception that powerful corporations set the terms of exchange in potentially exploitative ways.

Such intuitive computations would provide the cognitive context in which the mind processes socially transmitted information, e.g. to the effect that it seems true that “markets are cruel and selfish”, or that “a free market makes wolves free to attack sheep”. In such circumstances, external information provides a context in which some of the intuitions described here receive an explanation or a justification. Conversely, such explicit discourse about the economy is attention-grabbing for people to the extent that it matches some of these intuitions.

This perspective on the emergence of emporiophobia is a recent theoretical proposal (Rubin, 2014). There is no specific test of the hypothesis. However, a range of evidence on related phenomena are congruent with this psychological description. Behavioral economics studies show how trust and cooperation are inhibited when social situations are made anonymous (Bohnet & Frey, 1999; Hoffman, McCabe, & Smith, 1996); neuro-economic studies show how monetary rewards elicit greater emotional responses if we experience the source as a human rather than, for example, an impersonal computer – for a review, see Petersen et al. (2009); and management studies show that more impersonal forms of interaction (e.g., email rather than face-to-face interaction) reduce satisfaction with the interaction, due in part to a lack of emotional coordination (Baltes, Dickson, Sherman, Bauer, & LaGanke, 2002).

Future research could test the proposed explanation directly by utilizing an individual differences approach: does individual differences in attention to cooperative positive-sum games in everyday life predict endorsement of emporiophobia-related beliefs? This would not only provide a test of the link between perceptions of the market and social motivations but could also illuminate some of the political implications of FEBs. Emporiophobia is more outspoken among liberals than conservatives and, consistent with the proposed explanation, there is evidence that liberals in general are more oriented towards cooperative positive-sum games, in particular with strangers (Hibbing, Smith, & Alford, 2013). In this regard, it is important to note, again, that emporiophobia is a matter of stated, explicit beliefs, which may or may not reflect the intuitive principles that actually guide people’s economic behavior. People who say that markets are “bad”, may still behave as roughly rational agents in markets, and they may

even detect the advantages of competition in their everyday economic behavior. But, if asked whether a given domain of activity should be left to a market of competitors, or when asked the extent to which markets should be regulated, they readily express the view that market outcomes are socially detrimental.

5.5. Explaining FEB7: Wages, labor and the effects of ownership intuitions

FEB7 is the belief that labor is the source of “value”. Experimental studies have carefully documented this effect. For instance, adults and even young children assume that working to transform an object carries a potential claim to ownership such that, e.g., the artist, not the owner of the quarry, is the owner of the sculpture. This ownership claim is made stronger by the extent of the transformation (O. Friedman, 2010; O. Friedman & Neary, 2008; O. Friedman et al., 2011).

From a cognitive evolutionary perspective, human ownership psychology reflects the features of evolutionarily recurrent environments. Ancestrally, most valued and owned goods were previously unclaimed natural resources, that time and effort turned into something useable (whether food, tools or shelter). In such situations, labor is indeed the exclusive generator of both “value” and ownership. Features of modern economies that influences ownership and price such as ownership of capital and consumer demand were not crucial features of ancestral environments in the context of production. For example, claiming ownership over something processed by an unrelated person ancestrally would instead signal the existence of a clear dominance relationship.

While good evidence exists for the importance of labor for intuitions of ownership and value, future studies should seek to directly test people’s intuitions about the relative contributions of labor, as well as capital provision and consumer demands, in determining ownership. The prediction that emerges from the cognitive evolutionary perspective is that labor should be intuitively associated with ownership, while other factors are represented in explicit after-thoughts rather than through automatic intuitions. Studies utilizing measures of explicit and implicit processing could tease such effects apart.

This set of folk-economic beliefs (and, in particular, intuitions about value) illustrates an important point: that information that does not meet the input conditions of a system is simply not handled by that system. Here, our ownership inference system takes as its input the fact of original possession, the original state, and the amount of work that transformed a thing. These are the conceptual slots, the place-holders, to be filled by appropriate information. By con-

trast, the fact that there is, or is not, some demand for the work in question, does not fit any specific conceptual slot in our intuitive ownership system. So, it is simply not processed at all by the relevant intuitive system.

These beliefs also illustrate the political importance of FEBs. Intuitions about ownership and value resonate with arguments about large wage differentials between, for example, managers and frontline workers being unfair and that the latter contribute more “value” than the former. Such arguments have particular appeal if used to argue in favor of higher taxation or the regulation of business. Historically, Marxian ideologies have also continuously framed owners of capital as exploitive. In this regard, the evolutionary cognitive model entails novel testable predictions: the underlying intuition that owners of companies or factories are exploiting workers may not ultimately stem from observed differences in wealth, or poor conditions for the workers. Instead, an important contribution may lie in the fact that workers are perceived as investing more effort, often in the form of more physically demanding labor. To the evolved mind, this may trigger the intuition that workers are natural owners of products. Future studies could directly test this by examining how different factors such as wealth differences between management and workers, differences in working conditions, and differences in effort, shape the view that particular corporations are exploiting their employees.

5.6. Explaining FEB8: Large-scale regulation and small-scale minds

FEB8 is the belief that regulation has the intended economic effects. Specific examples include that belief that rent-controls drive down the average rent, that minimal wages increase average income, or the notion that there is a fixed amount of work to be done, so that limiting the working hours will palliate unemployment by distributing that amount (Worstell, 2014, p. 75). Economists generally point out that, even in the best scenario, unintended effects occur and, in some cases, reverse the desired outcome. Trust in regulation seems to be based on specific non-economic assumptions (Hirshleifer, 2008) and, in particular, an assumption of stable supply. For instance, people expect price-controls to affect market prices but have no effect on quantities supplied.

To explain this FEB, we need to take into account the fact that unintended consequences of this kind are second-order effects that occur in large-scale social systems. They reflect aggregate market responses to changes in costs and benefits (e.g., if the price of the good is regulated downwards, the market responds by decreasing quantities supplied). But our psychology of social ex-

change is designed for small-scale social systems, for personal exchanges between oneself and one or more identified others. The intuitive inference systems that evolved to deal with such situations do not, because of the small-scale nature of the situations, include any conceptual slots for aggregate dynamics such as origins of supply. In this way, FEBs about regulation do not emerge from a single set of intuitive inference systems. Rather, they emerge from the failure of particular pieces of information to be processed by *any* intuitive inference system.

Let us consider the specific example of rent-control to illustrate this interpretation in more detail. To the evolved mind, rent-control can be intuitively construed as a form of assistance that makes sense from a small-scale perspective, as it seems that resources are transferred from richer landlords to poorer lodgers. It is likely that systems designed for cheater-detection provides the motivational impetus to support such policies: the situation can be mentally represented as including a generic landlord who intentionally takes an extra benefit (increased rents) without incurring an extra cost (providing better lodgings), thereby meeting the input conditions for the “cheater” concept. In this context, the regulatory state appears to redress the situation; the rent ideally decreases, so that the situation no longer activates free-riding detection. Economists have pointed out that the adverse consequences of rent controls (i.e., lower supply of rental units) may offset any positive effects, although there is disagreement over the size of these negative dynamics (Jenkins, 2009). From an evolutionary cognitive perspective, people will fail to consider such aggregate effects, as the activation of evolved categories entails a perception of the situation as small-scale interaction. The cheater-detection system has no slot for information about the origin of supply and takes quantity supplied as a given. Indeed, in the exchange situations typical of our ancestral past, distribution typically had little effects on production. As described above, opportunity costs, insurance expectations and reputation management made it possible for people to *both* distribute most of the game they caught *and* be motivated to hunt again. Since there is no conceptual slot for information about the origin of supply, e.g. the incentives that make people offer housing for rent, this information does not enter into computations about regulations, thereby allowing a belief that regulation will have only the intended effects.

No existing studies have directly tested this argument and, at present, there is only scant evidence concerning the psychological representation of regulation (Hirshleifer, 2008). An initial set of evolutionary cognitive studies on regulation should test (1) whether presence of evolutionarily recurrent cues (e.g., cues of

cheaters) automatically induce that intuition that regulation in the relevant domain (e.g., rent) works and (2) whether explicit information about second-order dynamics (e.g., decreased supply) are discounted in the face of such cues.

6. Transmission and effects of folk-economic beliefs

6.1. Intuitive systems create cultural attractors

So far, we have analyzed the ways in which various cognitive systems could affect the relevance of particular pieces of information about the economy, making some views about e.g., unemployment or trade, particularly salient due to their fit with the contents of intuitive assumptions. We can now examine how the agreement or discrepancy between intuitions and some explicit notions of the economy impacts the transmission of information between individuals, thereby creating culturally successful representations. Here we are extending the work of economists who emphasized some particular ways in which individual psychology may influence economic beliefs (Caplan, 2008; D. D. Friedman, 2004; Rubin, 2002). Closest to the kind of model presented here, David Hirshleifer described what he called a “psychological attraction” account of popular opinion on regulation, arguing that “certain beliefs [...] are especially good at exploiting psychological biases to attract attention and support” (Hirshleifer, 2008, p. 857).

Our model extends this form of explanation to most domains of folk-economic opinion. We predict that information about economic matters will be all the more widespread, easy to acquire, natural, compelling, etc., when it matches the input conditions of the inference systems described above, thereby creating widespread folk-economic beliefs.

Human communication does not consist in “downloading” representations from one mind to another. Rather, it consists of inferential processes, whereby a listener makes use of observable cues provided by a speaker to reconstruct that individual’s possible communicative intentions (Scott-Phillips, 2014; Sperber & Wilson, 1995). Because of this interpretive quality of communication, cultural transmission will often follow unpredictable paths. We should not expect the contents of two minds from the same social group to be similar. And to a large degree, of course, they are not. Among the myriad mental representations created and sustained in individual human minds, only a minuscule fraction are shared with other individuals. Precisely for that reason, these common beliefs require special explanation. Why do people in a social group sometimes hold

roughly similar representations? This question stands in contrast to the questions of classical social science, for which social change was the problem, while the continuity of traditions was taken for granted (Morin, 2016).

A crucial insight of evolutionary anthropology is that cultural transmission processes are strongly constrained by the structure of human psychology (Sperber, 1985, 1996). The mind is prepared to acquire certain representations more easily than others. As a consequence, these representations are found, in roughly similar forms, in many different minds, becoming what we call cultural beliefs. The combination of expectations from our domain-specific intuitive systems, with communicative input from other members of our group, form what anthropologists call “cultural attractors”, positions in the space of possible representations where many minds seem to converge (Claidière et al., 2014; Claidière & Sperber, 2007). Cultural transmission creates stable representations, not just because people discard or forget material that is far from the attractors, but also because human minds actively distort fragmentary or deviant material. In other words, transmission is reconstructive rather than just selective (Claidière & Sperber, 2007; Morin, 2013).

This perspective on cultural transmission helps make sense of the cultural recurrence of some folk-economic beliefs, explaining for instance why the belief that imports from other countries are a bad thing, or the notion that immigrants are welfare-scroungers, are made more salient by their interaction with intuitions about coalitions and communal sharing. It is important to notice that the effect of intuitive systems on the spread of cultural beliefs are probabilistic. For instance, our intuitive free-rider detection system, or our evolved set of preferences for partner-choice, do not by themselves directly generate particular views of the economy. The intuitive systems only provide a context against which external information, provided by mass media, economists, political entrepreneurs or simply other individuals, is likely to become relevant, attention-grabbing, and therefore susceptible of cultural transmission.

Conversely, we are obviously not suggesting that the human mind is condemned to process only mental representations that are relevant to our intuitive systems. There are many circumstances in which humans have acquired and communicated thoughts that are entirely “non-intuitive”, in the sense that they do not match our evolved inference systems. People can for instance learn to think in terms of scientific physics, which often go against our intuitive physics. In the case at hand, people can learn economics and produce reasoning that diverges from the beliefs described here. However, acquisition of such non-

intuitive thoughts requires effort, and in most cases institutional support for sustained learning (Boyer, 1998).

6.2. Folk-beliefs do not reveal an implicit theory of the economy

Is there an economic system in the mind, a set of processes specially dedicated to economic transactions? It would be tempting, though in our view seriously misleading, to consider the set of folk-economic beliefs as a (spontaneous, popular, perhaps misguided) alternative to economic theory. In this view, FEBs would be the outcome of a particular vision of society and the economy.

We resist this interpretation, as there is little evidence for such an integrated, quasi-theoretical picture of the economy among lay-folk. In fact, the few studies of lay models clearly suggest the opposite. For instance, Williamson & Wearing (1996) interviewed ninety-five individuals and extracted from this material their implicit views about economic processes. They conclude that “the outcome was 95 unique cognitive models” (Williamson & Wearing, 1996, p. 3).

Indeed, folk-economic beliefs may vary not just between individuals, but also within the same person, at different times or in different contexts. That is, people do not seem to have stable economic beliefs, in long-term memory, that they could pull out on demand. In the field of public opinion researchers have made a strong case that we should dispense with such “file drawer” models of opinion formation (Wilson & Hodges, 1992; Zaller, 1992). People do not build and store stable, organized beliefs about the economy, ready to be made available when surveyed by a pollster. Instead, they make up their attitudes and beliefs “on the spot”, by retrieving relevant cultural representations, and (in our view) activating the relevant intuitive inference systems. For most individuals in modern mass-societies, there is little monetary incentive to evaluate one’s own beliefs about the economy or the political process (in contrast to many other domains in their everyday lives), and there is almost no price to pay for being factually wrong, which would explain why there is relatively little cognitive investment in evaluating their validity (Caplan, 2008).

The exceptional range of different understandings of the model identified by Williamson & Wearing (1996) also suggests that, for each individual, the model might be different if surveyed in another context. Indeed, there is evidence for such systematic changes. In an analysis of British voters during the recent economic crisis, Bisgaard (2015) finds that people rapidly shift their understanding of how much control the government has over the economy, depending on how the economy is doing and whether or not their favored party is in government. If the economy gets worse and people support the governing party, the govern-

ment is suddenly no longer viewed as in control. From an evolutionary cognitive perspective, such partisan motivations most likely stem from the operations of coalitional psychology (Haidt, 2012; Petersen, 2015). People signal support to their coalition by construing beliefs that protects it against criticism. Experimental results show that, like national or ethnic identities, partisanship is processed as a coalitional affiliation to the evolved mind (Pietraszewski, Curry, Petersen, Cosmides, & Tooby, 2015). Hence, it might matter for people whether they have the "right" FEBs from a coalitional perspective but not whether they have the "true" FEBs from an epistemic perspective.

The fact that folk-economic beliefs can change rapidly should not be surprising, as most of them are reflective, not intuitive beliefs. To illustrate this reflective nature of FEBs, consider "emporiophobia". Information about the fact that market transactions are one-shot interactions can lead to the intuition "there is danger here", because our evolved social exchange preferences include reiterated transactions with known individuals. This intuition of danger can then lead to forming, acquiring or accepting explicit reflective beliefs of the form "the market is bad".

From an evolutionary standpoint, it should come as no surprise that human minds do not comprise a specific "economics" module. Decision-making under scarcity, traditionally described as the domain of economic models, is not a unified domain of social interaction, for which evolution would have given us specific inference systems. Instead, the evidence from experimental psychology studies suggests that human evolution resulted in specialized systems for scarcity in food provision (foraging), in mates (sexual preferences), in social support (coalitional psychology), etc. (see Buss, 2016). Even in the domain of social exchange, as described above, we spontaneously activate diverse systems with different principles and potentially inconsistent responses.

6.3. Relationship between FEBs and economic behavior

The model presented here leaves a gap in our understanding, as concerns the connections (or lack thereof) between folk-economic views on the one hand, and economic behavior on the other. Many people in modern societies have explicit folk-economic views that do not just fly in the face of economic theory, but are also incompatible with their own behavior in markets. For instance, people may both have the explicit belief that "markets produce negative outcomes" and an implicit trust in competition in their search for the best prices.

We propose here that economic beliefs are largely constrained by evolved, domain-specific systems concerned with social exchange. So, there might be

connections between FEBs and economic behavior, to the extent that these same domain-specific intuitive systems are activated when people engage in actual economic transactions.

Unfortunately, this aspect of economic cognition is still very much a *terra incognita*. We can assume that economic decision-making is governed by a variety of intuitive systems, the aggregate output of which is an intuition that the transactions is desirable or best avoided, and that intuition motivates the eventual decision. Over the last decades, studies within behavioral economics has demonstrated how this intuitive output diverges, in relatively systematic ways, from the subjective utility maximization predictions of standard micro-economics (Charles R. Plott, 2001; Smith, 2003).

However, we still lack a computationally precise and reasonably predictive description of the cognitive processes engaged (Ross, 2005). Indeed, a large part of the behavioral economic literature assumes what could be called a person-level description of economic decision-making, in which information about possible strategies is combined and evaluated by a general-purpose, centralized utility-evaluating system – the difference from neoclassical models being that considerations of fairness, reputation, and other non-standard forms of utility, are added to the classical *homo oeconomicus* agent. This notion of utility as considered by a centralized agent corresponds to what Dennett calls the “intentional stance”, in which we explain behavior in terms of reasons, knowledge and intentions (Dennett, 1987). This way of explaining behaviors is produced by our intuitive psychology or “theory of mind”. It is very successful in explaining and predicting other human beings’ behavior. The operation of this intuitive psychology is so natural and invisible that it often seems difficult even to imagine another way of explaining behavior.

But there is an alternative, what Dennett called a “design stance”, in which we consider behavior in terms of the various computational systems involved in acquiring information about the environment and motivating specific behaviors (Dennett, 1987). Approaching economic decision-making in this perspective could make economic theory more congruent with findings and models from the cognitive sciences (Ross, 2005). In that perspective, decision-making in any domain is the outcome of a competition between distinct computational processes – and this of course applies to economic decisions as well (Kenrick, Li, White, & Neuberg, 2013), a view that is supported by behavioral evidence (Ainslie & Monterosso, 2004) and neuro-cognitive findings (Glimcher, 2009; Loewenstein et al., 2008). However, it is still difficult to describe how these models and findings could be integrated with classical, and often empirically

successful, descriptions of economic behavior in terms of rationality (Ross, 2005) and utility (Burnham, 2013). As a consequence, the actual connections between micro-processes of economic decision-making on the one hand, and folk-economic beliefs on the other, remain unexplored.

6.4. Political relevance of folk-economic beliefs

In this model, because of the activation of intuitive inference systems, some ways of presenting economic processes are more compelling than others. This would constrain political communication, not just from elites to the rest of the population, but also among lay-folk, with important consequences for political debate. Importantly, this would imply that a particular economic issue is often *not* discussed in the format that provides most information about the causes and consequences of policy, but in the format that is intuitively compelling, even if that obscures a great deal of the relevant information.

FEBs are politically important because they act as a set of background assumptions that forms the basis of the formation of political opinions. One important area of opinions relates to political candidates. A wealth of research within political science has shown that incumbent parties or candidates are punished and rewarded for bad and good economic developments, respectively. When unemployment soars, incumbents are more likely to lose. Importantly, however, research also shows that the link between economic circumstances and voting behavior is mediated by the perceived responsibility of the incumbents (Thomas J. Rudolph, 2003). Assignment of responsibility for macro-economic events necessarily relies on FEBs and an interpretation of the relationship between the actions of the candidate and the economic developments. Beliefs about the relationship between economic hardship, on the one hand, and international trade and immigration, on the other hand, could be influential. If the economy is doing badly and the incumbent government has increased immigration and trade, then our analyses suggest that it is more likely that the government will be held accountable on Election Day.

Such effects of intuitive systems are also relevant to policy choices. FEBs, and the intuitive systems underlying them, shape political behavior because they make certain ways of organizing the economy more compelling. Importantly, these compelling policies will in some cases be misguided, as the psychological systems were designed for small-scale exchange rather mass markets. For example, in small-scale environments of our ancestors, helping was a matter of transferring resources to a needy individual. Arguments for welfare policy that are framed that way should be persuasive. In modern markets, how-

ever, the effectiveness of any social solutions is also affected by equilibrium considerations. Consider the difference between targeted versus universal welfare programs. From a small-scale perspective, targeted programs should be most effective in helping the needy, as they bring resources specifically to those in need. Yet, in market economies, comparative studies provide compelling evidence that welfare programs are more redistributive, and help the neediest people more, when they are universal rather than targeted. That is due, again, to macro-level dynamics ignored by our intuitive systems. Research shows that it is possible to sustain high levels of benefits from a welfare program, but only when the politically influential middle class are among those benefiting from that program (Korpi & Palme, 1998; Rothstein, 1998). When they do not benefit, most voters are persuaded that the benefits should be scaled down. Because of this electoral dynamic, universal programs are on balance more redistributive than targeted programs. This net result arises from both their high benefit rates and the fact that higher income groups contribute more to the program via taxation than low income groups. But, again, evolved exchange intuitions would make people less likely to be persuaded by arguments that touch on such dynamics, compared to arguments that fit our intuitive systems for allocating benefits between individuals.

Folk-economic beliefs are politically important because they constrain how politicians can talk about policies to the public. Political scientists have documented the effects of “framing” or particular informational choices on policy views (Chong & Druckman, 2007). The model presented provides a more specific understanding of framing processes. That is, certain policy-related messages are more compelling or persuasive, not just because they are more “concrete” or “simple” or “vivid”, as is often suggested, but also because they meet specific expectations from our intuitive systems. For instance, policies that increase international trade with rival countries or that allows more immigrants to enter the country can be more easily framed as economically problematic than as beneficial, not because the former description is “simpler” but because of the match it offers, between intuitive inference systems and a particular constellation of arguments (Arceneaux, 2012).

7. Conclusion

In 1922, the American journalist Walter Lippmann grasped the characteristic of modern mass societies when he wrote: “our opinions cover a bigger space, a longer reach of time, a greater number of things, than we can directly ob-

serve” (1922, p. 42). If this was true in 1922, it is even more true in the 21st century. And if it is true about mass societies in general, it is nowhere as true as with the market. No citizen can ever observe each of the distant transactions that comprise the market economy. It is not just a matter of practicality. The market mechanism is in principle unobservable. Even if all transactions could be observed, one would still not observe the economy as such - such a claim would be a category-mistake in the sense of Ryle (2009[1949]). The “hand” that governs the causal processes of the market is, as already pointed out by Adam Smith, invisible – that is, not just hidden but in principle difficult to detect (Nozick, 1994). As consequence, lay people, when forming their internal representations of the economy, cannot rely on much, if any, feedback from direct experience. And without external experiences as a reality-checker on their beliefs, they are left with what others report and what they themselves can imagine.

We proposed a new explanation for the differences between laypeople and economists’ views on a number of economic issues. Instead of considering folk-economic views as irrational deviations from normative understandings of economic processes, we explain them as the outcome of principled cognitive systems. These appeared in human evolution as adaptive response to specific challenges, and are automatically activated whenever a situation meets their input criteria. The intuitions provide support for deliberate, explicit, reflective thoughts, among which are the culturally transmitted folk-economic beliefs considered here.

How and why people acquire and stabilize beliefs about the economy is, obviously, crucial to understanding political dynamics. Economic policies are central to the overt choices offered in most liberal democracies, but we are only starting to figure out the effects of intuitive systems, typical of all normal human minds, on the acquisition and transmission of people’s explicit beliefs about the economy.

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