# Chapter 10. How laypeople understand economics

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# 1. Understanding Economics is hard yet expected

Economics is notoriously hard to understand. The domain is inherently difficult (Arthur 2000) and, in contrast to some other domains, the human mind is not particularly equipped to think about economics (Pinker 2002; Rubin 2003), as it constitutes a domain that was irrelevant to humankind's evolutionary past. As a consequence, lay people understanding of economics frequently contradict accepted professional knowledge regarding economic matters. An article in The Economist recently wondered about the policies of Turkey's Mr. Erdogan:

> *Mr Erdogan seems desperate to prop up growth, which increased by a feeble 1.7% year on year in the third quarter of 2014.... Lower rates, the president believes, are the answer. In fact, the central bank has been lowering rates, even though inflation is well above the target of 5%(...) Yet Mr Erdogan denounced its most recent cut, of a quarter of a percentage point in late February, as insufficient. He accused ... the governor of the central bank, of "selling out the homeland" [...]* ***Mr Erdogan claims—against all the evidence and in complete contradiction to orthodox economics—that cutting rates will somehow lower inflation.***

How lay people understand economic phenomena is poorly understood, though of late there has been a significant increase in the number of studies investigating the topic (Caplan 2011; Gangl *et al.* 2012; Leiser and Drori 2005; Loix and Pepermans 2009; Ranyard *et al.* 2008; van Bavel and Gaskell 2004; Williamson and Wearing 1996). This chapter will sketch what is known about lay understanding of economics by first discussing several key features of lay understanding in general, and try to suggest how they account for lay economic understanding.

Beyond the inherent interest of the topic, it is of capital practical significance for two distinct reasons. First, citizen understanding is essential for democracy (Caplan 2011; Davies 2015) and it affects public policy through the political process (Fornero 2015). Policy makers may hesitate to pursue what they consider the best policy if they know that the public will not understand its rationale or its necessity and oppose it. Indeed, the public tends to judge unpopular policies as more necessary if they match its understanding (Huston 2010; 2012). Second, economic beliefs affect economic behavior (Roos, 2006, 2008), and constitute an important component of the economic model (Darriet and Bourgeois-Gironde 2015).

## i. The complexities of macroeconomics

Why is economics so difficult to understand? Several reasons may be mentioned. One is that economic theory functions as a complex causal system, whereas people are remarkably poor at combining causal links into a system (Grotzer 2012; Perkins and Grotzer 2005). Even when aware of a given link (A causes B), people tend to not think of the feedback effects (B affects A in return) or of further, indirect effects (A affects B and B affects C, so A affects C too.) This means that the *scope* of explanations tends to be overly narrow, and to involve too few aspects. Another reason is that many of the basic factors in economic theory, and especially in macroeconomics, are aggregate variables, such as money supply, inflation rates, and Gross Domestic Product. Consider for instance a definition of money supply: it is *the sum total of currency and other liquid instruments in a country's economy as of a particular time*. The kind of causality that links such variables is the cumulative outcome of countless individual transactions, that are not individually known. People understand other people well (Shahaeian, Peterson, Slaughter, & Wellman, 2011), they can grasp their motivations and actions, yet are ill-equipped to cope with the aggregate effects of the individual decisions of many. Relatedly, the type of causality invoked by economic theory is not intuitive. It routinely explains outcomes by the "equilibrium seeking" of a complex dynamic system. A striking implementation of this way of thinking was the MONIAC hydraulic economic model of 1949 (Ng and Wright 2007): a physical model of the economy in which flows of consumption, saving, investment and other economic forces were represented by liquid moving through tubes and pipes as monetary and fiscal variables varied, and the whole system could be observed as it came to an equilibrium (Ng and Wright, 2007).

And yet, despite the difficulty to understand economics without proper formal training in the discipline, discourse addressed to the public on matters economics implicitly conveys that it is expected to understand it, and such discussions are exceedingly common. Newscasts and the written press will discuss whether the present time is a good time to buy a house and why, the economic circumstances of the latest decisions by the central bank governor and its likely consequences, or the probable economic significance of a "Brexit" (UK withdrawal from the European Union). This state of affairs is very different from that observed in other domains. News programs, for example, do not invite civil engineers to talk to the public about the precise technical mishap that caused a bridge to collapse, doubtless on the reasonable ground that it wouldn't be capable to follow the explanation.

## ii. How to understand what you cannot

Faced with the expectation that they can and ought to understand those issues, lay people try to make sense them. To do so without proper training, they must assimilate this discourse in some way, by imposing some simpler structure, rely on heuristics or other means. The rich and complex interactions of large sets of variables that economic models strive to master is reduced to a simpler pattern. Below we present the GBG heuristic, that allows answering just about any macroeconomics question without comprehending the underlying mechanism, and captures much of lay understanding of macroeconomics, such as it is.

Another way people handle the complexities of the economic world is through the use of metaphors, the assimilation of the intractable issue to a familiar domain whose structure is better understood (Holyoak and Thagard 1989). For instance, several authors (Furnham 1988; Leiser and Zaltsman 1990; Sevón and Weckström 1989) discuss the view of the national or the community economy as akin to a family, with the government or the local administration in the role of the parent.

Finally, intentional and teleological accounts come naturally to people. Whatever happened occurred because someone willfully made it to happen. Thinking in terms of how an interlocking system of causal links produces an emergent outcome does not come naturally to laypeople. Recent studies strongly suggest that goal driven accounts constitute the default way to understand causes, with the other types of causality being invoked only by more advanced thinkers functioning under favorable conditions. (Donovan and Kelemen 2011; Kelemen and Rosset 2009; Kelemen *et al.* 2013; Leiser and Beth Halachmi 2006; Lombrozo *et al.* 2007; Rosset 2008). This explanatory mode leads to personalize economic matters, look for people responsible for a state of affair, to animism and personification, even to the ascription of wants and volition to entities such as the stock market (Morris, Sheldon, Ames, & Young, 2007). We will discuss the conspiratorial style in economics, the tendency to see occult and conspiratorial causes behind economic events, which constitutes a prime expression of the intentionality bias.

If the public crudely oversimplifies the interactions of large sets of variables that economic models strive to master yet feels it does understand the situation tolerably well, this has consequences, political and economic. A simple illustration: retirement funding in many countries is actuarially untenable, due to a combination of increased life expectancy,

lowered return on investments, and demographic changes. In responsibly run countries, this concern require certain policy changes. The consequence is often that members of the public, who do not understand how pension funds function, feel they are being cheated of their hard-earned rights. As Caplan (2002a; b) points out, the issue is not just that the public randomly support policies in a way that the support might cancel out. Rather, to use the phrase made famous by Ariely and Jones (2008), their mode of understanding is *predictably irrational*. The many misconceptions, simplifications and distortions that plague the public's understanding are systematic. The challenge for researchers is to identify these systematic misconceptions.

The preceding paragraphs referred to the economically naïve as the "public", in contradistinction to economists and their models. However, high-ranking decision makers may be equally uninformed. As our opening example suggested, political leaders may be economically naïve and rely on their uneducated intuitions to pursue wrongheaded, sometimes populist policies (Thomadakis 2015). Indeed, many countries have had senior officials in charge of the treasury or the central bank who lacked economic training. In another recent piece on the Nigerian central bank, *The Economist* (June 2015) reports:

*Economists find the policy baffling. Central banks usually prop up their currencies if they are worried about inflation, or allow them to devalue to depress imports and stimulate exports. Nigeria, by contrast, appears to be set on achieving both an uncompetitive exchange rate and higher inflation.*

This is of course not to say that public's understanding is necessarily wrong, or that modern liberal economic is the golden standard that represents truth. Economic theory is an historically derived conception, and certainly not the only possible one, as attested by fundamental debates opposing alternate conceptions. Yet it remains the case that, with its severely limited understanding of many fundamental aspects of the economic world, (as we will be documenting below) the public's participation in those debates is somewhat ineffective. "Democratic debate stagnates into discussions between small elite groups over small differences behind the backs of an increasingly disillusioned and unrepresented public. This ... is a grave threat to our democracy"(Inman 2015).

# 2. Interacting variables

In the following section we discuss lay knowledge regarding macroeconomics, centering the discussion around the concept of inflation. The reason for this focus is that the understanding of inflation was studied more than that of other macroeconomics variables, and because psychological inflationary expectations actually affect price dynamics. We will show how it is understood, with a restricted scope; how people perceive the relation between inflation and unemployment; how relations between macroeconomics variables are understood in general, on the basis of the good-begets-good heuristic; and discuss macroeconomic consequences. We will don't cover here biases in the perception of inflation, an important topic treated in another chapter. Our focus lies in how people understand inflation and its relations to other macroeconomics variables.

## iii. Lay views on Inflation

Leiser and Drori (2005) examined lay beliefs inflation in different groups of society. There were interesting differences, but the core of their representation of the phenomenon is nearly identical across the groups, and at variance with the concept held by professional economists. To the (economically) naive individual, inflation is perceived as something bad that befalls prices and money: money is worth less, prices are higher. Its consequence is a lower value of the local currency and devaluation. Missing from their account are wages, unemployment, the government, the central bank, and indeed, any understanding of economics as a system. This conception could not be more different from Friedman's famous helicopter image. "When we economists hear the term "inflation", writes Mankiw, we naturally start thinking about helicopters dropping money over the countryside. We imagine a continuing change in the unit of account that alters all nominal magnitudes proportionately" (Mankiw, 1997). Laypeople presumably imagine shriveling money.

Little wonder, then, that contrary to most economists, the public is categorically averse to inflation. To them, Zero inflation is best, an opinion shared by Turkey's ruler, as we saw. Shiller (2003) interviewed laypeople, and asked them why they so dislike inflation. The answer is simply: they believe that inflation makes them poorer. His respondents cite various inconveniences associated with inflation, such as making it harder to judge whether a price is advantageous, and to plan for the future. Another source of concern is the perception that inflation provides the opportunity for some economic agents to take advantage of others, and that inflation makes us feel good but ultimately deceives us, that will weaken the country's currency, damage its national prestige, and so increase political

instability (the causation they see is from inflation to instability). Still, as Shiller stresses, the supposed direct effect of inflation on the standard of living is paramount, while the public is comparatively indifferent to the inconveniences it produces (Scheve 2003; Shiller 1997)

The naive concept of inflation is significant beyond the prediction of the rate of inflation. For instance, Savadori et al (2001) who studied the content and structure of mental representation of economic crises in Italy, showed that inflation is considered a prime symptom of economic crisis, even though persistent inflation has a tendency to become the normal state of affairs in an economy. Again, the introduction of the euro was accompanied by inflation – that is seen by laypeople as a negative phenomenon. A common inference was the introduction of the euro is responsible for inflation (De Rosa et al., 2003). These examples illustrate how reception of economic policy by the public depends on how it grasps the situation and the causal forces at work.

## iv. Inflation and unemployment

Expectations of inflation are the beliefs held by the public about the likely path of inflation for the future. The "Phillip's Curve" states that there is an **inverse** relationship (or 'trade-off') between the rate of unemployment and the rate of inflation in an economy, and more precisely, unemployment varies with *unanticipated* inflation. But laypeople do not believe in the Phillips Curve. (Dixon *et al.* 2014) (Dixon, Griffiths, & Lim, 2014) analysed a long-running survey (Melbourne, 1995-2011) comprising over 220,000 observations of consumer's views about the expected state of the economy. The questionnaire included many questions, out of which we will be concerned with two: on **inflation** *Thinking about the prices of things you buy, by this time next year, do you think they'll have gone: (1) up, (2) down or (3) stayed the same? (4) Don't Know*, the other on **unemployment** *Now about people being out of work during the coming 12 months, do you think there'll be (1) more unemployment (2) About the same/Some more some less (3) Less unemployment (4) Don't Know"*. The respondents answered separate questions involving their perceptions of likely (un)favorable changes for unemployment and predicted prices. Looking at the pattern of answers to these questions, (Dixon *et al.* 2014) show that except for rare special cases, such as during the financial crisis, the answers correlate **positively**. This was confirmed by Dräger, Lamla, and Pfajfar (2014) who exploited the data accumulated over the years by the University of Michigan Survey of Consumers, which collects consumer's expectations regarding the main macroeconomics variables on a monthly basis. Their goal was to evaluate whether U.S. consumers form macroeconomic expectations consistent economic

theory. We will shortly return to their findings, for now we merely mention their finding that a mere 34% of the people surveyed holds expectations in line with the Phillips curve.

## v. The Good Begets Good heuristic

The studies just summarized relied on participants independent assessment of expected movements in the levels of economic activity. We now turn to people's explicit *beliefs* about how such variables are related. In one early study, Rubin (2003) provided participants with index cards carrying the name of dozens of variables and asked them to pick pairs of variables that are causally related, in the sense than an increase in one will cause the other to increase or to drop. When collating all the cards selected by a given participant, we obtain conceptual maps such as Figure 1 that lays out (part of) one participant's answers to individual propositions (of the form *A* raises *B*). This however, is a synoptic map created by the experimenter – but unless professionally trained, participants are quite incapable of grasping how their individual insights combine into a system: they understand its fragments piecemeal (Barbas and Psillos, 1997; Grotzer 2012; Lundholm and Davies, 2013; Leiser 2001; Perkins and Grotzer 2005)

Insert Figure 1 – Fragment of a Causal Map Linking Economic Variables

And yet, there is structure to their understanding. Leiser and Aroch (2009) presented some twenty macroeconomic variables to participants. These included measures of aggregate economic activity (like the GNP), the rate of economic growth, corporate profits, wages, private spending, private investments on the stock market, the rate of inflation, the rate of unemployment. For every pair of variables, they were asked to judge explicitly whether they were causally related. For example, *If the unemployment rate increases, how will this affect the inflation rate?* Specifically, they were asked for every pair of variables A and B: *If variable A increases, how will this affect variable B?* Possible answers were: B will increase /B will decrease/B will not be affected/"I don't know". The participants exhibited striking self-confidence. The average rate of "Don't Know" answers was 27%, meaning that, in about three quarters of the cases, participants felt confident enough to answer, although many studies have shown how little laypeople understand. Where does this extraordinary confidence originate? The answer emerges when one plots all the variables on a line, putting them close together the more they are positively associated (A increases B), and far from one another the more they are negatively associated (A decreases B). It turns out that this ranking almost perfectly correspond to rankings of how good or bad an increase in a variable is judged to be by laypeople. Changes in economic

variables are judged to be good or bad, and this provides the (dubious) basis for their answers, and their confidence. If A and B belong to the same pole, (good or bad) an increase in one will also raise the other; if they belong to opposite poles, a raise in one will cause the other to drop. This heuristic was called the *good-begets-good (GBG) heuristic*. It is a simple heuristic, that represent an instance of the general human tendency to bi-polar thinking (Brown, 1991), and explains both why participants answer so confidently and the pattern of their answers. Unfortunately, that heuristic is also far from being valid, as we will presently see.

## vi. Macroeconomic consequences of the GBG heuristic

We now return to Dräger *et al.* (2014), who analyzed the microdata of the Michigan Survey. Their goal was to evaluate whether U.S. consumers form macroeconomic expectations consistent with the economic concepts we discussed here: the Phillips Curve, linking inflation and unemployment rates; the Taylor Rule (linking employment and price stability) and the Income Fisher Equation, linking inflation with nominal and real interest rates (or income). They report that 50% of the surveyed population have expectations consistent with the Income Fisher equation, 46% consistent with the Taylor rule and only 34% are in line with the Phillips curve. These figures overestimate what laypeople understand, since the analysis relies on correlations between predictions and many people may have gotten the direction right without understanding. Only 6% of consumers form theory-consistent expectations with respect to all three concepts. Unsurprisingly, those relatively few consumers with theory-consistent expectations also tend to have lower absolute inflation forecast errors, and are closer to professionals' inflation forecasts, suggesting that they follow economic news rather closely.

What happens when the economy becomes unstable? Predictions become of course harder. Dräger *et al.* (2014) observe that consumers are even less consistent with the Phillips curve and the Taylor rule during recessions and when inflation exceeds 2%. From the perspective of the central bank, stabilizing the economy and leading it to growth becomes more of a challenge. In addition to the economic complexities involved, laypeople's model play a role. GBG implies that rising actual and expected rates of inflation ("negative" developments) are predicted to lead to lower actual and future economic growth, higher unemployment and lower corporate profits. As the expected rate of inflation increases, individuals become more pessimist about the future prospects of the whole economy. In times of crisis, this lessens the chances of recovery. It is well known that

the concept of overall sentiment about the economy has a large psychological component (Bovi 2009; Resende and Zeidan 2015) and the GBG explains in part how this component functions.

As we saw above, Dixon *et al.* (2014) showed in their analysis of expectations of economic change that lay predictions of inflation and unemployment conform to the GBG heuristic, and is at variance with the Philips Curve. Gaffeo & Canzian (2011) further showed that the GBG heuristic has real world economic consequences, and in particular that it complicates the task of the Central Banks. The Taylor rule is a monetary-policy rule that stipulates how much the central bank should change the nominal interest rate in response to changes in inflation, output, or other economic conditions. The GBG heuristic means that the public perceives the economic situation in a simplistic manner, as improving or deteriorating, and this generates waves of optimism or pessimism (Gaffeo and Canzian 2011). A wave of sentiment among the public can trigger a corresponding change in aggregate demand. Such waves triggered by inflation dynamics but also governed by the GBG heuristic enhances the effectiveness of monetary policy when the volatility of the public's sentiment is relatively low, but acts as a destabilizing device when intense." The authors conclude that controlling the system by means of monetary policy is a much tougher task than predicted by the received wisdom on the stabilizing properties of the Taylor principle.

## 3. Using Metaphors

The previous section presented one way in which laypeople try to come to grips with the overwhelming complexity of macroeconomics: they use a simple heuristic to generate (sometimes invalid) answers, accompanied by a (spurious) feeling of competence. In this section, we briefly present another way to attain the same goal, namely by the use of metaphors or similes. Metaphors offer a bridge from the known to the unknown, from the familiar to the unfamiliar. In Piagetian terms, is enables the assimilation of phenomena by relying on an existing cognitive structure, the domain whose structure is already intelligible. According to Carey (2009; see also Dunst & Levine, 2014), the human capacity for conceptual understanding and efficient reasoning relies on rich developmental primitives provided by evolution, modes of understanding that developed in humans faced with cognitive domains, such as the biological, the physical, the psychological-interpersonal domains, and the moral. Some of these developmental primitives are embedded in systems of core cognition, while other structures are acquired in the course of development (Gopnik

and Wellman 2012; Xu 2011). When having to deal cognitively and emotionally with matters for which humans are not particularly equipped, people may try to assimilate in into one of those other domains. This is how they come to describe complex economic processes in physical or biological terms (Cheng and Ho 2015), or with concepts useful to understand social relations (Lakoff 2002).

Those domains form the backdrop for the wide-ranging specific metaphors used to understand particular economic areas and phenomena. Christandl, Oberlechner, and Pitters (2013) identified eight distinct perspectives adopted when thinking about the financial crisis: a burden, a misconduct/crime, other people's suffering, an injustice, an opportunity and a looming threat, an illusion and the doings of fate. Similarly, Oberlechner, Slunecko, and Kronberger, (2004) examined metaphorical conceptualizations of the foreign exchange market held by market participants, and concluded that their understanding of financial markets relies on seven metaphors: the market as a bazaar, as a machine, as gambling, as sports, as war, as a living being and as an ocean. Crucially, each metaphor highlights and hides from view certain aspects of the foreign exchange market. Some of the metaphors imply market predictability, other do not. For instance, the sports and the machine metaphors were found to be associated with fixed rules and predictability, whereas the bazaar and war metaphors with unpredictability. Morris et al (2007) showed how, in stock market commentary, agentic metaphors (i.e., that describe price movements as volitional, such as "jumped" vs "got caught") cause investors to expect that a trend will continue; As Paul Krugman urges:bblock those misleading metaphors. "*America's economy isn't a stalled car, nor is it an invalid who will soon return to health if he gets a bit more rest. Our problems are longer-term than either metaphor implies. And bad metaphors make for bad policy. The idea that the economic engine is going to catch or the patient rise from his sickbed any day now encourages policy makers to settle for sloppy, short-term measures when the economy really needs well-designed, sustained support.*" (Krugman 2010) ".

Among the different cognitive explanatory stances, one stands out: the personal, intentional one. As discussed in the introduction, intentionality is the default mode of understanding causality. Faced with some phenomenon, people tend to see it as a willful action, though of course they can also think again, and adopt another perspective. This psychological bias comes out very clearly in studies about the causes of the world-wide economic crisis. Leiser, Bourgeois-Gironde, and Benita (2010) conducted a cross-national

study analyzing how people from several countries account for the crisis. Respondents came from the USA, Germany, France, Russia, Israel and Sub-Saharan Africa. They found that respondents tend to attribute the responsibility for the crisis to moral, cognitive, and character failures of individuals, rather than to systemic features of the economy. The finding that relatively few respondents blamed the system is striking because the financial crisis would have been a natural opportunity to take stock of capitalism and globalization. These findings were confirmed in Austria by Gangl *et al.* (2012) who observe" "contrary to our expectations that the participants would criticise the economic system in general, especially neoliberalism, as this critique was also part of the public discourse about the crisis [...], we rarely found such information." Working in Iceland, a country hit hard by the economic crisis, Thórisdóttir and Karólínudóttir (2014) too found that people were most likely to blame human foibles for the crisis (moral failures, stupidity, deliberate negligence, lax regulation and supervision), and attributed it less to the capitalist system or to the notion that the economy "spun out of control" before people in charge could take action. Also in line with these findings, a qualitative analysis of Irish lay explanations of the financial crisis disclosed a wide range of ideas about society, power, morality, public sphere and personhood. The crisis was not a strictly economic event but a political, social and moral one (O'Connor 2012). Summarizing, the public holds mainly a moral/intentional view about the origin of the crisis, and not as a complex impersonal system that malfunctioned or is structurally doomed to fail, though several variables do affect the tendency to focus on one or the other of these explanatory stances (Aprea and Sappa 2014; Leiser, Benita, & Bourgeois-Gironde, in press)

An extreme case of intentional causality is afforded by conspiratorial thinking. Leiser, Wagner-Egger and Duani (in preparation) presented laypeople in Switzerland, Israel and the US with various possible accounts for a range of economic concepts (the business sector, stock markets, globalization, etc.). The participants expressed their degree of agreement with various statements. For instance, *Stock markets... (A)...are a necessary tool, a mechanism that allows for sophisticated financial activity, which is an indispensable component of modern economies (B)...have evolved uncontrollably in the past decades, and the government is not acting vigorously enough to regulate their activity (C) ...are easily manipulated by the select few who can influence it via speculation, causing many small players and individuals to lose a great deal of money (D) ...are an effective way for businesses to develop, but it also allows wealthy individuals more power over the economy and over the development of other businesses*. Another example: *The government...(A) ...regards the*

*citizens' wellbeing as its primary goal; ultimately, they act to assist and promote their quality of life. (B) …doesn't really care enough about the citizens and did not properly regulate the economy as was its duty (C) …acts as puppets in the hands of wealthy and powerful individuals, who promote their interests before those of the people. (D)… attempts to maximize growth and GNP, and is so doing harms the wellbeing of ordinary people*. The four accounts corresponded to contrasting types of accounts: A: the liberal economics textbook explanation; B: Government malfunction – the government is to blame C: The Conspiracy explanation – small and powerful groups manipulate the markets D: The 'bad' invisible hand – the natural market equilibrium is not socially optimal. The authors found that there exists in indeed a conspiratorial style in economics, people who endorsed the conspiratorial style (C) tended to do so throughout. Moreover, they were also more likely to give credence to classic conspiracy theories regarding such events as the moon landing and the death of Lady Diana. The preference for the different types of accounts was found to be correlated with personality traits.

## 4. Financial Literacy

It would be impossible to conclude this chapter without making reference to the topic of financial literacy. Recent changes in the labor market, growing availability of debt vehicles like credit cards, and recent pension reforms, in particular the shift from Defined Benefits to Defined Contributions plans, have placed the onus of financial management on the individual consumer. With it has come increased attention to individuals' capacity to manage their financial affairs, and the extent of their understanding of economic topics. The phrase financial literacy was coined to refer to this ability. Recent research has documented great gaps in the ability of savers to manage their savings, due to lack of basic financial knowledge (Lusardi & Mitchell, 2011). As a means to increase people's level of financial abilities, leading organizations such as the OECD and the World Bank promote educational programs. All this would seem to imply that the topic of this chapter is very timely.

While knowledge is certainly to be encouraged, extensive academic research questions the 'financial literacy' approach to the improvement of financial abilities. That research suggests two conclusions: Attempts to increase financial literacy have a negligible effect on financial behavior, that moreover decays over time (Fernandes et al. 2014) (Fernandes, Lynch Jr, & Netemeyer, 2014). Changing economic understanding and behavior is very difficult. A

survey by Collins and O'Rourke (2010) suggests that counseling programs have only a modest positive effect while participating in an economics course did not enhance minimal economic knowledge (Wobker, Kenning, Lehmann-Waffenschmidt, & Gigerenzer, 2014). Further, financial decisions are also affected by biases, psychological factors and external factors that may overshadow the gains of financial education (De Meza, Irlenbusch, & Reyniers, 2008; Willis, 2011; van Overveld, Mark, Smidts, Peffer and Atkinson, forthcoming). Accordingly, more investigators are expanding the financial literacy research towards "*financial capability*" which focuses on actual financial practice and decisions rather than knowledge (Johnson and Sherraden 2007). By asking people to report common behaviors in four distinct financial categories (Managing money, Choosing products, Staying informed, and planning ahead) researchers are able to diagnose specific financial abilities (Atkinson, McKay, Collard, and Kempson, 2007). A meta-analysis performed by Miller, Reichelstein, Salas, and Zia (2015) that took this approach was able identify specific areas where financial intervention can make the difference (e.g. increasing savings but not reducing loan defaults).

Economics suffuses modern society but was absent from that of our evolutionary forebears. The disparity between our innate cognitive endowment and what would be required to grasp our social and economic environment is vast. Working out how to derive from this realization ways to enable people to live economically sound lives in a democratic society is a major and increasingly pressing challenge.

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## 6. Further Reading

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# 7. Bio-sketches

### vii. David Leiser

David Leiser is Full Professor of Economic and Social Psychology at the Dept. of Psychology, Ben-Gurion University of the Negev, Israel. He was educated in Mathematics (Hebrew University of Jerusalem BSc 1972) Adult Education (University of Illinois at Urbana-Champaign, MSc 1973) and Psychology (Université de Genève, Switzerland, PhD 1978). He was the founder and director (2003-2013) of the Center for Decision Making and Economic Psychology, (2003-2013) and Co-Founder of the Center for Research on Pension, Insurance and Financial Literacy (2014-) both at Ben Gurion University. Leiser served as President (2010-2014) of the International Association for Research in Economic Psychology and currently is President (2014-) of the Economic Psychology Division of the,

International Association for Applied Psychology. His current work centers on the analysis of lay understanding, in particular in the economic domain.

## viii. Zeev Kril – bio sketch

Zeev Krill is a senior researcher in the Chief Economist Department within the Israeli Ministry of Finance. His interests include macroeconomics and fiscal policy, lay understanding of economics and Nudge economics. Before joining the ministry he worked as a consultant and as a lecturer in Economics at Ben-Gurion University, from where he also received a BA in Economics and Psychology and a MA in Economics.