

Naïve Understanding of Inflation

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ABSTRACT

A multi-faceted questionnaire was presented to four groups of people occupying different positions in the economic world: students in psychology, technical high school students, grocers, and school teachers, in an effort to identify commonalities and differences in their concept of inflation. The questionnaire included concepts associations, closed and open questions.

Comparison of their answers indicated that the core of the social representation is nearly identical across the groups, and at variance with the concept held by professional economists. To the (economically) naïve individual, inflation is perceived as something that befalls prices and money, whereas causes or corollaries are more loosely associated. The depth of *understanding* was found to be widely different across groups, and several misconceptions were identified. These findings are discussed in the context of psychological theories that emphasize the multi-sided nature of lay conceptual systems, and in that of social representations, that stress the interaction between concepts developed by professionals and the cognitive and social factors that shape their assimilation by the public at large.

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INTRODUCTION

The psychology of inflation- economic significance

Little is known about how ordinary people understand the phenomenon of inflation. Standard works in economic psychology either ignore inflation altogether (e.g., Antonides, van Raaij & Maital, 1997, Webley, Burgoyne, Lea and Young, 2001) or examine only its influence on perceptual phenomena (Lewis, Webley & Furnham, 1995).

During the early 1960s, many economists and policymakers believed that monetary policy could exploit a stable trade-off between the level of inflation and the unemployment rate, expressed by the Phillips curve. This implied that policymakers could lower the unemployment rate by generating higher inflation (Phillips, 1958). Later work by Phelps (1967) and Friedman (1968) contended that such a trade-off is necessarily short-lived: once people came to expect the higher inflation, monetary policy could not keep the unemployment rate permanently below its “natural” level (i.e., the rate of unemployment that prevails when inflation expectations are confirmed). This view was later confirmed empirically.

Expectations of inflation are the beliefs held by the public about the likely path of inflation for the future. The modern view holds that it is the *actual* rate of inflation relative to the *expected* rate that matters. The expectational Phillips curve describes the links between inflation and unemployment, taking into account expectations of inflation. According to the expectational Phillips curve, unemployment varies with unanticipated inflation. For example, if the economy surges ahead of potential output, the unemployment rate will fall below the natural rate, and inflation will tend to rise.

A important factor in the inflation generating process is therefore contributed by psychological inflationary expectations. For instance, when labor unions negotiate wage contracts, or when firms enter into contracts to deliver their goods at some future date, contract pricing is influenced by the level of prices that is expected to prevail over the course of the contract. An increase in the general price level diminishes future purchasing power of the wages of union members, or shrinks the real profits of the firm.

In view of this, the work by Katona came to have great significance. George Katona, in the 1930s, studied hyperinflation in Germany and looked at how economic expectations influence consumer spending, saving and borrowing (Lambkin, Foxall, van Raaij & Heilbrunn 1998). This led him, after World War II, to quantify changes in consumer sentiment. The result was the University of Michigan's Index of Consumer Sentiment (Katona 1980), which interviews about 500 individuals each month about their present financial conditions and current and future buying plans. Katona (1980, p. 3) identifies three features of behavioral economics that sets the discipline apart from neo-classical economics: its starting point is empirical investigations of the behavior of business people and consumers; its focus is on the process, rather than the outcome, of decision making; and it measures

and analyses psychological antecedents, such as motives, attitudes and expectations, that influence economic decisions.

Inflation psychology can lead a life of its own— it can continue for a while even if government sharply cuts back or stops inflating for a while; people go on with low cash holdings or reduce them further, for instance, or go on raising prices in expectation of being justified by more inflation. Its perception affects expectations, confidence, and saving behavior (e.g. Wärneryd, 1999a, 1999b). In view of this, it is perhaps understandable that to date, virtually all the psychological work on inflation was concerned with various determinants of the perception, prediction and memory of rates of inflation (for instance, Batchelor, 1986; Bates and Gabor, 1986; Kemp, 1991; Wärneryd, 1986; Wärneryd and Wahlund, 1985; Webley and Spears, 1986). An interesting study in this context is that by Svenson and Nilsson (1986) in Sweden. Their paper reports on several small-scale studies, aimed at determining the main causes of inflation according to economically naïve and sophisticated subjects. In those studies, respondents indicated what the relative importance of factors and the causal chain involved. Differences were found between the groups, but as the authors recognize, their work is mainly of methodological interest in view of the small scale of the sample and its exploratory nature.

The naïve 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 has been accompanied by inflation, which is mostly seen as a negative phenomenon, and in the eye of the public, the euro is responsible for inflation (De Rosa, Jesuino & Gioiosa, 2003). For such examples, it may be seen that the reception of economic policy by the public depends on how it grasps the situation and the causal forces at work.

Associations and Understanding

The present study analyzes and compares the social representations of inflation in various groups who did not have the benefit of a formal, organized introduction to economics. The method consisted in using several different tasks that were intended to tap different modes of understanding by our respondents. To see why this is necessary, it is important to appreciate that, outside one's domains of expertise, understanding can be shallow and incoherent (Leiser, 2001). Individual judgments are largely made independently from one another, each with a backing that involves only part of the respondents' store of knowledge and critical faculties. This is not to say that their ideas necessarily form a haphazard collection of random fragments, for there are other factors that bring about coherence, beyond the cognitive efforts of the individual. Domains such as economics that have substantial practical or social importance are structured by the society at large, resulting in "social representations". Social representations are defined as socially shared ideas, opinions, attitudes, and theories (Moscovici, 1981, 1984).

Social representations are influenced by public discourse (mass media, newspapers, school, the discourse of politicians and so forth), yet also have their own coherence. They affect the diffusion of normative theories used by professionals, assimilating but also distorting and modulating them. Definitions of terms in a social representation often differ from the canonical definition and signification of the corresponding concepts.

French psychologists in particular developed theory and method of social representations theory. Vergès (1989) points to two **social** processes: the representations reflect the practical experience of the social agents, and are therefore dependent by their social position and their relation to reality. Further, representations are also the outcome of the processing by the society on the meanings of concepts, such as the ideological and political debates, and the way it manages different modes of thought. Socialization into a culture can provide therefore a great deal of such coherence (see e.g., Breakwell & Canter, 1993; Doise, 1989; Duveen & Lloyd, 1990). The socio-economic location of the agents is therefore the crucial variable of the analysis of representations. In particular, one can expect a much deeper penetration of economic ideas in the case of a worker independently employed and minimal in the case of an employee in the public service.

Naïve understanding, of economic or of any socially significant domain, is shaped by both social and cognitive forces. Among the cognitive dimensions, two processes may be singled out (Vergès, 1992, 1994, 1998; Vergès and Bastounis, 2001). One is the **selection** process, responsible for the emergence of a set of concepts related to the concept under scrutiny, its neighbors in the "semantic map". One might for example study what concepts come to mind when inflation is evoked. This set will be related to past co-occurrences of the concepts in the same discourse (Buchanan, Westbury, & Burgess, 2001; Burgess, 1999). Amongst these neighbors, one can further distinguish between a central core and a peripheral system (Abric, 1993; Vergès, 1992). The central core is defined as a stable, non-transformable part of the representations, whereas the peripheral system accounts for inter-individual differences with respect to a stimulus object.

The second process is what Vergès calls **schematization**: organizing the concepts in a wider network of similarities, opposition, contextualization, and causality, everything that makes for a larger coherent whole. Consider for instance a recent report, selected quite at random "China is trying to stem pressures that could ignite inflation, warning of dangers from excessive spending on real estate and an influx of money from currency speculators" (*Austin American Statesman*, Aug. 26, 03). "Stemming pressures" liable to "ignite" economic processes, "warning of dangers", these phrases conjure an environment as dynamic as it is fraught. But beyond this picture, the reader may also set out endeavor to understand such statements, and become capable of explaining cogently the relations between currency speculation, money influx, and inflationary pressures.

These social and cognitive processes mean that people could end up with several modes of relating the concepts. To study semantic domains such as those that include the concept of inflation, one should therefore use varied ways of eliciting knowledge from the respondents.

The notion that complementary methods should be used to do justice to the complexity of underlying conception is supported by the literature on child development. The information-dependency point of view in developmental psychology argues that certain forms of social knowledge (unlike knowledge about the physical world and logico-mathematical knowledge) is heavily dependent upon the provision of information by socialization agents. Hence there are social class differences which stem from the different types of information which are made available to each person. This was indeed found for instance in the work of Jahoda (1983) and of Emler and Dickinson (1985). However, a distinction must be made between the level of cognitive elaboration and the extent and contents of knowledge. Thus, in a study of urban and rural children in South-Africa (Bonn, Earle, Lea, & Webley, 1999), the authors did find differences between those groups. The particulars of the children's knowledge about wealth, poverty, inequality and unemployment were indeed influenced by their social environment. However, in line with previous studies, (e.g., Leiser, Sevón, & Levy, 1990) children's capacity to make inferences and integrate information about these concepts was found to be more influenced by age than by their social milieu.

These considerations dictate the choice of a methodology: To tap the selection function, we will study the spontaneous associations to a concept. Schematization will be studied by seeing how concepts are related to one another, and especially to what extent they are able to justify the links they do recognize as important. We formulated two hypotheses about the relation between the different aspects of naïve knowledge, and the several populations.

- We expect that the central core of the concept of inflation will be shared by all groups whereas the Peripheral system will be different, in keeping with the relative importance of the various concepts for the different groups.
- We further expect to find differences in the level of understanding. Justification of links involves references to causal mechanisms beyond the mere associations that form the sediment of public discourse, and resulting understanding will be dependent on the contrasting background and experiences in which it is anchored.

METHOD

We selected groups that occupy different positions in the economic world. Four groups of people without formal background in economics were interviewed. *High school students*, who have not yet entered the adult economic world yet, though they receive some pocket money and engage in teenager work (see Leiser and Ganin, 1996). *University students* in Israel don't live with their parents, live on a very tight budget, and usually work on part-time basis to support themselves. *School teachers*, (typically female), are employed in a non-productive sector by the State. They receive a fixed salary unrelated to their performance and depend on their rather powerful trade union to look after their financial interests. Lastly, *shopkeepers* who usually own their small shop (grocers, shoes, hardware, etc.) and are independent workers.

The subjects in the study are distributed as follows:

- 1) Twelfth grade technical high school students on a non-matriculation program (mean age 18.6, many were interviewed in the summer, 60% male); (N=50)
- 2) University students without training in economics (mean age 27, mean years of study 14.3, 40% male) (N=50)
- 3) Grade (=elementary) school teachers (mean age 41.5, 16.4 years of study, 20% male) (N=49).
- 4) Shopkeepers (mean age 41; mean years of study 11.5) 80% male, from a disadvantaged area in Beer Sheva, Israel; (N=49)

Respondents were interviewed individually, and given no material reward for their participation. The questionnaire consisted of four parts, and is based in part on a study by Vergès, Albertini and Ryba (1996): (1) generate terms related to inflation; (2) given 10 concepts written around a circle, draw links between those that seem most related, then explain the links chosen; (3) indicate whether you agree or disagree with a set of statements (and explain your choice); (4) Select from among several answers your view on "How are prices determined?"

RESULTS

Part 1 Associations

In this first part, we will analyze the associative structure of the semantic domain involving inflation. This will be done in two ways, following Vergès, Albertini et Ryba (1996). First, we will examine what concepts are evoked by the concept "inflation", then we will present a set of related concepts, and ask them to indicate those that are especially closely related

1a Associations to "inflation"

Subjects were asked to specify terms, concepts, or short phrases related to inflation. They were asked to generate at least 4 answers, and no more than 10. These terms were regrouped into categories, on the basis of contents. Terms were grouped together on the basis of any of the following: *near synonyms* e.g. cost of living increase, price increase, prices rising were all grouped under price increase; *contrast*: e.g. unemployment, full employment were regrouped under employment; (c) word combinations with a *shared anchor* term, e.g., price level, price of product, prices of apartment, were grouped under prices.

The mean numbers of concepts mentioned per person are: Hi-school students, 3.6, Shopkeepers, 3.7, Students, 4.6, and Teachers, 4.7. This reflects the richer differentiation of the concept in the university students and teachers populations.

Two obvious criteria to gauge the importance of a concept category are the rank it occupies in the respondents' lists on average, and how frequently it is mentioned across respondents. For each subject

and each category, we identified the earliest representative of the category in question, and averaged this value, across all subjects as well as separately for each group separately. We also tallied, for each category, how many respondents mentioned any one of the representative terms or phrase, and again did this both for all subjects, and for each group separately. These two criteria are not always correlated. Figure 1 plots frequency against mean position across all 198 subjects. An elaborated technique was developed by Vergès (1994; Moliner, 1996, Flament & Rouquette, 2003) to analyze this type of data. We will merely use the criterion used by Vergès to detect the "central core" ("noyau central") which is, simply enough, to identify those concepts that are both mentioned frequently and early as forming the core.

Insert Figure 1 about here

Across all subjects, the main associates are *Money*, *Price Increases*, the *Cost of Living (COL) Index*, and *Devaluation*. For our subjects, inflation is first and foremost a rise in prices, while money loses of its value. These effects are respectively expressed by the COL index, by which inflation is measured, and by devaluation, literally a loss of value (of money)¹. Another important concept is "economics", the field where these phenomena happen – but we will presently see that all groups do not mention this concept. Valuations are found further down in the list: recession, negative, personal hardship.

There are but few differences between the groups. Main associates of inflation for each group were (mean rank, frequency): *Technical High School*: Economics (2.3, 18.), Money, (2.5, 18), COL index, (2.3, 16), Price increases (2.6, 15), Interest (2.7, 13); *Shopkeepers*: Price increase (2.0, 30), Devaluation (2.7, 14), Work (2.7, 13), COL index (2.2, 11), Interest (2.5, 11); *Students*: COL index (2.4, 26), Price increases (2.8, 19), Interest (3.6, 18), Money (2.1, 16), Devaluation (3.1, 16); *Teachers*: Price increases (2.6, 30), COL index (3.0, 19), Devaluation (1.9, 16), Work (3.4, 16), Foreign currency (3.2, 13).

The shopkeepers and the teachers groups mention *work*, and explain that people have to work harder to make ends meet. They are the older respondents, who feel the weight of running a household. High school students, who have rather vague notions and a shorter economic memory, mention prominently "economics" – the (to them) remote realm to which this term belong.

1b Linking concepts

For the second question, subjects were shown the layout of economic terms presented in Figure 2, and requested to link those that are most related. They were to draw up to five links, then to explain why they had drawn each link. The explanation was written by the interviewer, who prompted the respondent to elaborate if he/she could.

Insert Figure 2 about here

¹ The Hebrew term for devaluation, *pi'hut*, similarly means "lessening".

In order to obtain a synoptic view of the way concepts are linked, we used the number of people selecting a given link between two concepts as a measure of their similarity. We then subjected the resulting triangular matrix to a two-dimensional multi-dimensional scaling procedure, the MDS module in Statistica, from StatSoft (Purkhardt & Stockdale, 1993). Further, we indicated on the resulting maps the strength of the link, when it was high. Specifically, when a link was selected by between 20% and 40% subjects in a group, it is materialized by a thin line, and when more than 40% of the subjects selected the link, it is materialized by a thick line. Figure 3 presents the 2D MDS map for all the respondents (stress = .15; Stress for the other maps described below is comparable Shopkeeper: .12; Teachers: .15; University Students: 0.14; and high-school students: 0.18). The central concepts, linked to most other concepts are *inflation*, followed by *prices* and *taxes*. Inflation, in Israel, is a worry, and the COL index is reported monthly in the news with some emphasis, after a day of speculation by economists. Still, it must be noted that at the time the interviews took place, August 1999, inflation was close to nil, as the country was close to a recession. Conceptually, inflation is indeed a phenomenon that affects many aspects of economic life, and this is reflected in its central position.

Insert Figures 3 and 4 about here

Comparing the MDS maps for each group (presented in Figure 4) reveals some interesting differences.

A. Shopkeepers

For shopkeepers, *inflation* is central. It links with interest, in the sense of loan repayment²: when inflation rises, people get into debt, and have to pay interest on those debts. Subjects often refer to payment of index-linked loans by the familiar phrase “interest and index-linked”. Several also mentioned that when there is high inflation, interest rates are increased so as to diminish consumption, a consequence they feel directly in their shop. *Prices* too are near the center, as seems natural for people who are concerned about prices the whole day long. This concept is close to both the COL-index and to inflation, as well as to the other nexus composed of foreign trade, supply/demand and prices. The topic of wages, central to the teachers (see below), is here entirely peripheral, presumably again because they are not affected. Taxes are linked to salaries, because income tax is taken off salaries. Curiously, the shopkeepers do not mention VAT, which is paid on all goods, perhaps because it is economically “transparent” to them.

B. Teachers

In this map, *salaries* or *wages* (the terms are interchangeable in Hebrew) are placed in the center of the map. For teachers in Israel, who are represented by powerful trade unions, the real issue regarding inflation is whether their salaries will keep up with it. Salaries have two links, to *taxes* and *inflation*, the

² All interpretations of links are based on extensive analyses of the protocols.

two perceived threats to their salaries. Further, teachers note the relation between *supply/demand* and *prices*, and indicate a number of additional straightforward links.

C. University Students

Neither salaries nor inflation receive pride of place here. Students are not salary earners (whilst most hold jobs, linking of wages to COL is not an issue for them, as they don't expect to remain with the same employer for long). No single organizing concept appears in the middle of their map. Instead, they point to many rather independent connections of various strengths that organize the concepts into a circle. Inflation and interest rates are related, but explanations offered refer to a macro-economic level: covering the national budget deficit, for example. Similarly, they discuss the common link between supply/demand and prices at the aggregate level, whereas others tend to think of the link in the opposite and more individual direction: the price level determines the demand for a product. Taxes and budget also were explained by this group in terms of macro-economic processes.

D. High School Students

While the overall structure is extremely similar to that of the shopkeepers, the origin of that structure comes out more clearly here. Concepts are linked locally, in a piecemeal fashion. Thus, import/export is probably related to supply/demand because they are similar. The explanations certainly do not indicate any understanding: "One imports according to demand, and exports according to the offer" (an involuntary word play: the term for supply is the same as that for offer, in Hebrew). Or: "It depends on the demand, if something cannot be found in this country, it is imported." "If we produce something and they need it abroad, we export it". Inflation is of course connected to prices. Taxes and wages are linked, because (income) taxes are taken off the wages. Inflation and budget are linked, as belonging to the remote macro-economic world of the news, along with the COL-index. Budget and taxes are connected, because "when the government does not have enough money, it has to raise more taxes." "The government budget comes from taxes." Putting all these links together generates the map. Wages are again peripheral.

Lastly, it is interesting to identify the neighbors of inflation in the map. For teachers, inflation is more related to salaries than to prices; for shopkeepers and high school students, the opposite is true. For college students, the two are about equidistant.

Summarizing this part, it is clear that the main links mentioned between concepts, and the resulting semantic map, reflect the position of each person in the economic system.

Part 2 – Understanding

This part probes what Vergès called "schematization", that is, the ability to articulate an explanation of the links between concepts into a coherent construction.

2a Depth of understanding

The MDS maps are based on the strength of the links between concepts. We now turn to the way subjects accounted for them, and especially to the depth of their accounts. For data reduction purposes, we devised the following *ad hoc* scoring method for the quality of the explanations (not for its correctness): *Detailed*: 1 point when a detailed explanation was given, possibly involving a third mediating concept, several causes were given, or an analogy was offered; *Crude*: 0.5 point – for a crude explanation; *Vacuous* 0 point – when one of the terms to be linked was ignored, the explanation was unintelligible or when no explanation was offered, but the link merely restated. We then divided that score by the number of explanations provided. This ensures a final score of 0 when all explanations are vacuous and of 100 if all are detailed. Due to space limitations, no examples will be provided. Table 1 summarizes the distribution of answers, in percentages (Pearson Chi-square=22.83, $df=6, p=.0008$).

Insert about here Table 1

High school children gave the most vacuous answers, followed by shopkeepers. University students and the school teachers gave significantly better explanations overall, and in particular, twice as many detailed answers.

2b Evaluating Statements

Economic Model Questionnaire (EMQ)

The Economic Model Questionnaire (EMQ) is a multiple choice instrument designed by Leiser and Briskman-Masliah (1996) for tapping lay causal explanations of economic phenomena. Conceptually derived from Salter's work (1986), its main aim is to differentiate individuals who believe the economy is motivated by the forces of demand from those who conceive the economy as run by the forces of supply. The EMQ was used as part of the Adult Economic Values and Models Study in which parallel data was collected for eight countries. Four questions in the EMQ refer to inflation³: (I1) What is the main factor that influences the rate of inflation? (I2) What will happen to inflation if the interest rate will increase? (I3) What is the best way to fight inflation, in your opinion? And (I4) How does the availability of money affect inflation? Each question is followed by four proposed answers.

Respondents selected the answer that best expresses their own view. Table 2 summarizes the answers in Israel and, for reference, in the international sample.

Insert Tables 2 & Table 3 about here

³ The AEVMS study is concerned with various aggregated data and psychometric issues (see Bastounis, Leiser and Roland-Levy, 2004; Allen, Ng and Leiser, under review). The data reported here is not published elsewhere.

There are no significant difference between the occupational groups (see Table 3), who were all adults, some involved in the business world (managers or independents), others salaried in the non-productive sector (teachers). A common thread summarizes their understanding, and may be expressed by concatenating the modal answers. Two factors affect inflation: the expenses by the government, and the amount of money "in the economy". These exert an upward pressure on prices. If people have less money, they can buy less and that pressure will lessen. This can be achieved by an increase in the interest rate.

However, these four statements are very limited, as they address only a small part of the relevant semantic field. Further, the data consists only in frequencies while our interpretations may be flawed. For the present study, we developed a new, much more detailed questionnaire, and elicited detailed explanations from the respondents. It is to these that we now turn.

Inflation Understanding Questionnaire (IUQ)

The IUQ, developed for this study, consists of 18 statements, about which respondents were to express agreement or disagreement. The statements involve various statements on concepts related to inflation. Fifty (or at least forty-nine) respondents from each group answered the questionnaire in full. In addition, 30 respondents from each group were requested to explain their selections. Table 4 summarizes the responses, and includes a running discussion of the findings. The interpretations of the choices are based on the transcripts of these explanations.

Insert Table 4 about here

2c How are prices determined?

As we saw, inflation is largely identified with an increase in prices. This last part addresses the question of how prices are determined. Respondents were presented with the following list of mechanisms (derived from preliminary open interviews):

The price of a product can be determined in several ways:

1. As a result of supply and demand between sellers and consumers
2. Computed on the basis of the costs and the investment of the relevant companies
3. Computed on the basis of what the customers are willing to pay.
4. Depends on the decision of the government
5. Depends on competition
6. Depends on international trade
7. Reflects the value of the goods

They were requested to indicate the three statements that, in their opinion, best express how prices are determined. Table 5 summarizes the percentages of each choice, ordered by decreasing popularity across groups (Pearson Chi-square = 56.08, $df=18$, $p=.00001$)

Insert Table 5 about here

Two similar concepts appear at the top of the list: “Supply/demand” and “Competition between sellers”. The third most popular determinant of price was “costs to and investments by the companies involved”. Awareness of these costs increases steadily, from high school students and shopkeepers to students and teachers. High school students stress the role of the government, while students, shopkeepers, and teachers do not believe that the government is significantly involved in settling prices. High school students also attribute more importance to international trade than do the other groups. This pattern of answers suggests that to high school students, economic matters are remote, powered by obscure forces that exert themselves in the abstract sphere discussed in the media. International trade belongs to that world, and the Government does have a measure of control over it. The other respondents have a better grasp of the concepts involved, though it remains fragmented and consists more in a set of disjointed understandings than in an overall conception of a process.

DISCUSSION

This study sought to compare groups on the basis of several approaches to eliciting knowledge. We found that the *central core* of the concept (see Abric, 1993) was easy to identify, and common to all groups. The conception that emerges from the associated concepts in Part 1 may be expressed as follows: *Inflation consists in high(er) prices, as expressed in COL index; its consequence is a lower value of the local currency and devaluation*. It is worth pondering what concepts are *absent*: salaries, industry, unemployment, and the government. Inflation, then, is ***something that befalls prices and money***, whereas causes or corollaries are more loosely associated⁴. In this sense, there is indeed a socially shared concept of inflation, a social representation (Moscovici, 1981, 1984), and this representation is significantly different from the normative understanding of professionals.

The social processes postulated by Vergès (1989) were clearly in evidence: While the associative core of the concept is shared by the various groups, the structure of their map exhibits differences in the peripheral system. When concepts are provided by the experimenter, and the respondent is required to select the main links between them, different maps are produced by the different groups, reflecting the specific economic perspective of different economic agents. In particular, the centrality of salaries in

⁴ This tight link between inflation and money has an interesting manifestation. Leiser and Izak (1987) found that the money-size illusion (a perceptual illusion whereby the size of a coin is misjudged as a function of its value) is influenced by the current rate of inflation.

the case of teachers, and that of prices in that of shopkeepers, is very telling. The depth of understanding varied according to the experimental groups. The *number* of concepts generated, both by each individual and by the group as a whole, differs. The *complexity* of the explanations offered for the links and the *depth* of their justification for the statements they endorse varies in the same way.

The schematization process is responsible for embedding individual concepts in a wider network. This embedding relies on every type of relation, from the mere co-occurrence in discourse of concepts, to a deeper understanding of their relations. A striking phenomenon is the general willingness of respondents to indicate links between concepts, even though they could not say much of significance on the nature of those links. In our sample, more than eighty percent of the explanations for the links offered by the respondents were either very superficial or downright vacuous (with of course some differences across the groups, as we saw). This fits with an observation by Williamson and Wearing (1996): “The cognitive models showed that Ss seemed to understand the connection between government revenue and expenditure, although questionnaire responses suggested otherwise.” The associative aspect of conceptual knowledge is much more important than is commonly realized (Sloman, 1996)

As we mentioned, causal principles involved in social representations may be at variance with those endorsed by professional economists. Several common understanding heuristics could be seen running through the answers. The first is the slant towards absolute rather than relative interpretations, as for example with the statement: *Buying something today is much more expensive than in the past*. This tendency is pronounced in the case of the non-matriculation teenagers, who were selected as a group presumably not given to economic ratiocination. Such thinking in terms of absolute properties appears to be the basis of another important heuristic used by subjects to order the world of economics: *Good Things tend to produce other Good Things* (and conversely). This heuristic, a simple associative rule, requires no understanding of any specific mechanism. It is clearly seen, for instance, in Statement 5 and the type of explanations produced: *When export is larger than import, inflation decreases*. A last discrepancy consists in the tendency to understand in micro-economic terms statements concerning macro-economics. Consider the statements “*Tax increases decrease the value of money*” and “*Subsidies to basic expenses (milk, bread, public transportation) decreases inflation*”. Understanding the process of inflation requires understanding beyond the level of the individual (Leiser, Sevón & Levy, 1990). Specifically, it needs to relate aggregate values. It seems that high school students tend to remain at the level of “scripts”, standardized accounts of who does what, and why, which leads them to attribute an excessive role to the government. Thus, they agree far more than the other groups do to statements 12 and 17, which state that the cost of living index is decided by the government (according to its own needs). This was seen as a factual statement of one of the prerogatives of the government, with very rare signs of resentment towards the government for exerting it as it sees fit. Again, in the MDS maps of the high school students, national (=governmental) budget and inflation are tightly linked. Since these same subjects did not believe that “printing of money” decreases its

value, it is clear that they have little tendency to think macro-economically. In previous studies with children (Leiser, 1983; Leiser, Sevón and Levy, 1990), references to the Government was found to serve as a convenient explanation for whatever is poorly understood, as an elementary explanatory construct, and this is no doubt how it functions here too for the high school students.

It should be clear by now that the psychology of inflation is much more than a listing of the factors that may affect the public estimate of future inflation. Properly mapping the psychology of inflation involves identifying the associations, explanations and causal reasoning utilized by the respondents, as a function of their economic position and socialization. An analogy may be useful. Consider the question “what does Europe think about allowing Turkey to join the European Union”. Of course, not all Europeans hold the same view, but a reasonable operationalization would provide a mean opinion, or a breakdown of various views. Much more appropriate however, would be to distinguish the various groups and currents that underlie the distribution of opinions. Thus, one could point at distinctions between respondents on the basis of their cultural background, economic circumstances, geography, religion, age and so forth. Such a finer analysis is not only important to generate a representative sample: it is essential to understand the dynamics of the positions, and to predict their future evolution, on the basis of predictable demographic changes, economic and cultural development, educational intervention, and so on.

We hold that the same state of affairs obtains intra-psychologically as well. It is not enough to obtain a respondent’s report on his or her naive theory, or elicit the extent of agreement to a battery of statements. We must endeavor to identify the varied cognitive systems that partake of that naive understanding, see when each is brought to bear and how they interact. Associations, heuristics, analogies to everyday experience, and understanding of economic phenomena all have their place in an account of the meaning of inflation to lay persons. We believe all of these affect the way they react to economic plans and law proposals, and ultimately make their economic decisions.

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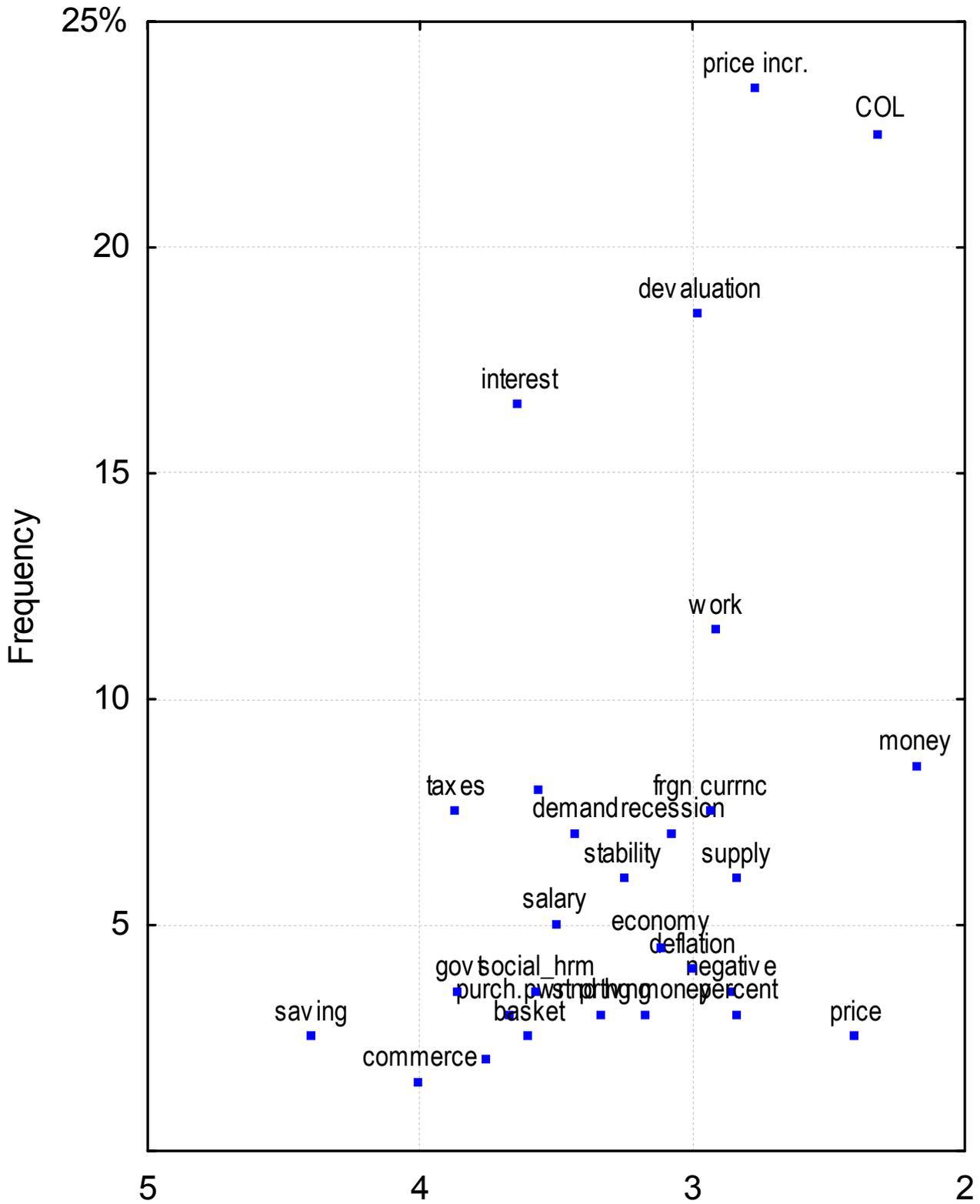


Figure 2 -- Main associates of inflation (across groups)

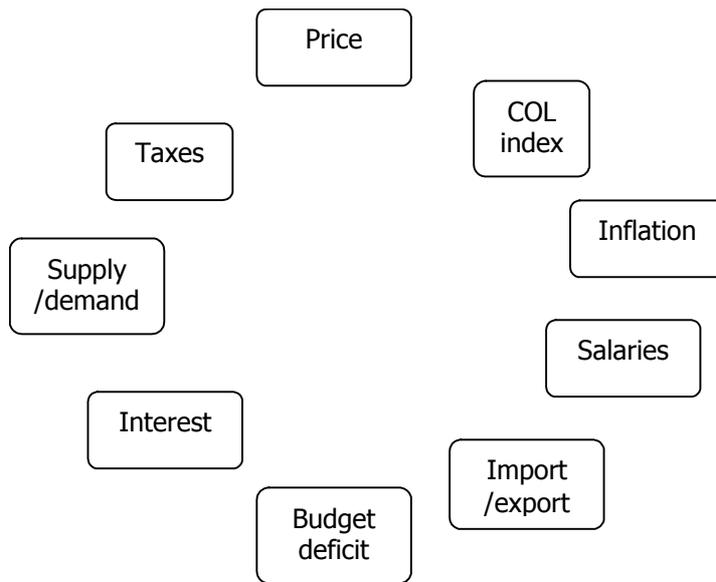


Figure 3 **Concepts to be linked**

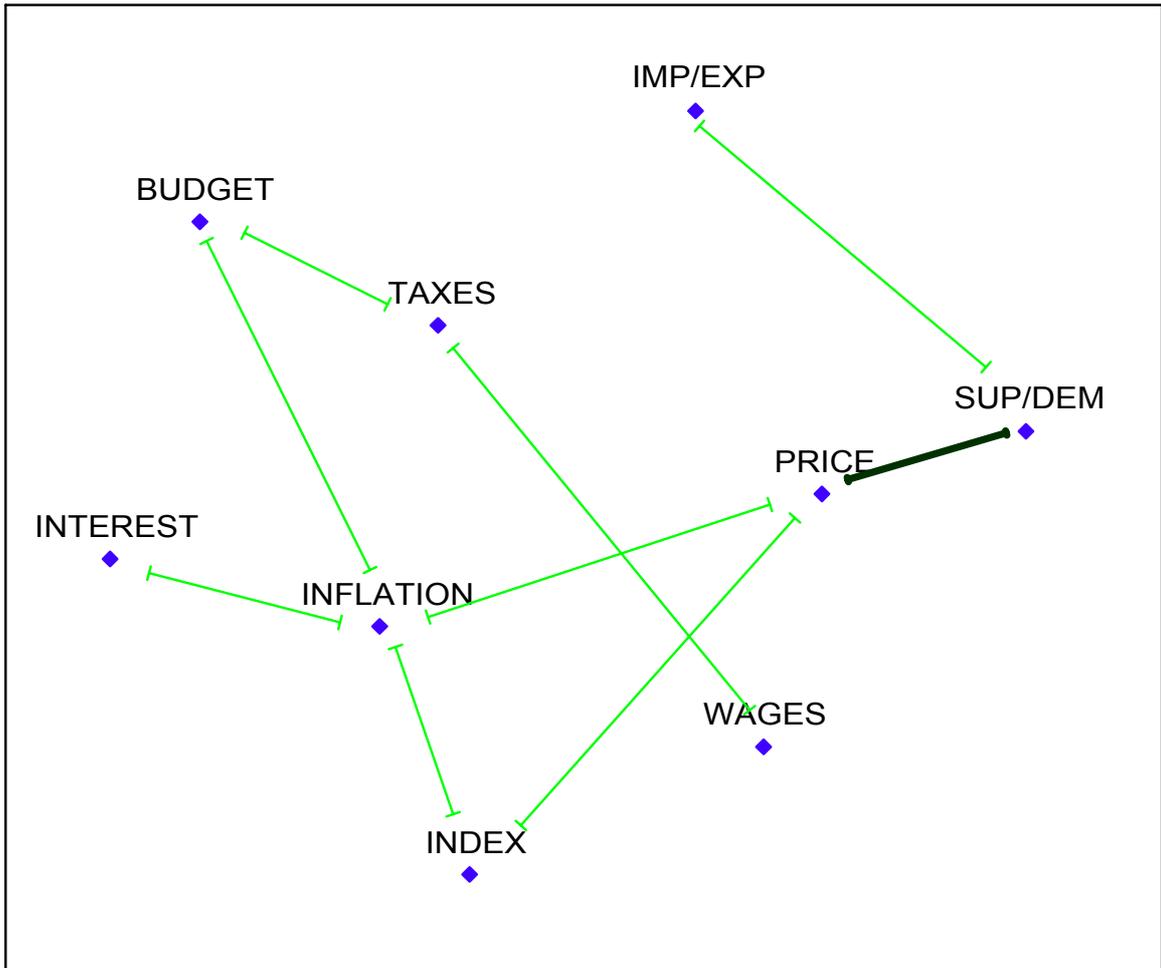


Figure 4 MDS Semantic field of economic concepts across groups

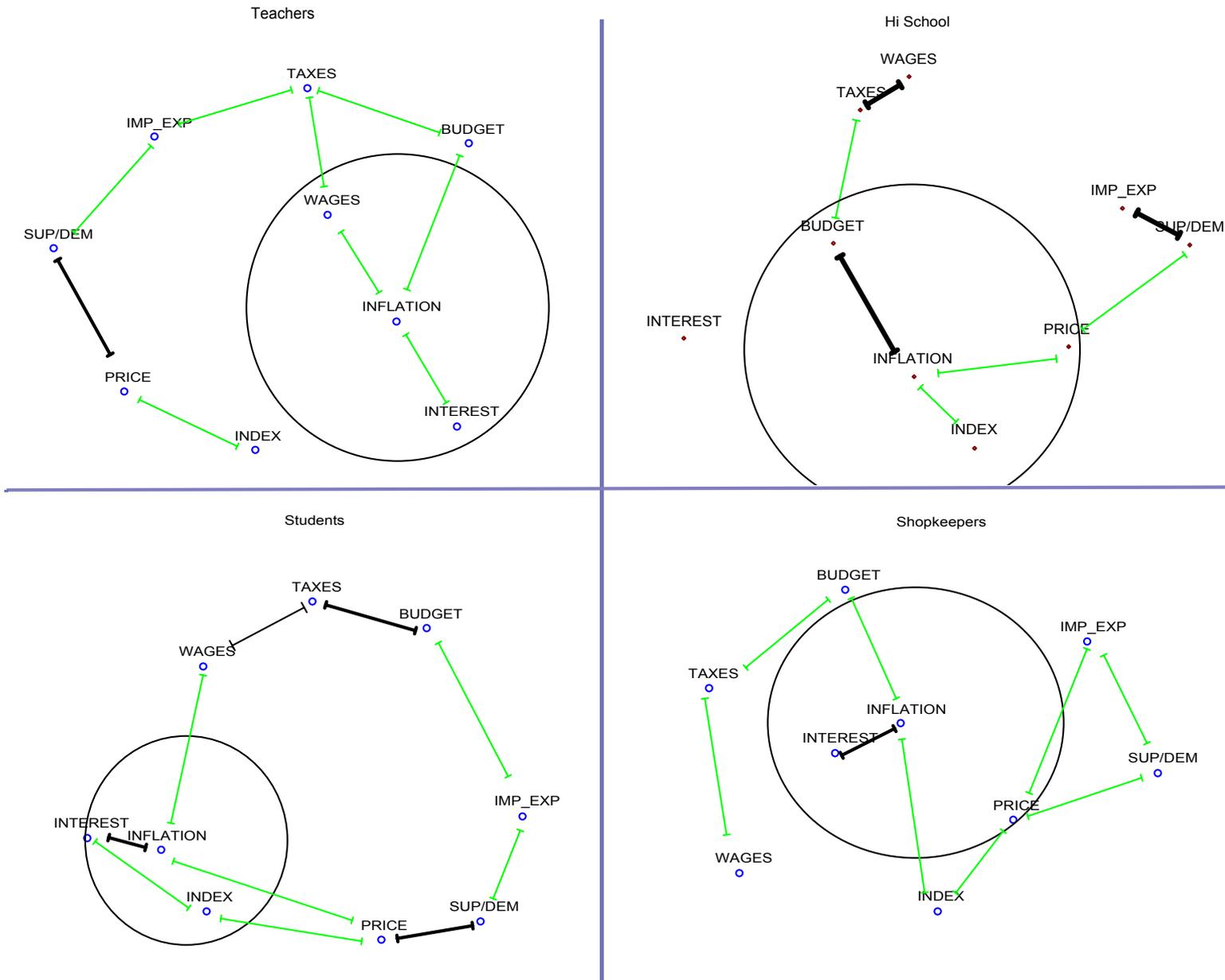


Figure 5 MDS for each group

Group	Level			Score
	Vacuous	Crude	Detailed	
High School	24	66	10	43
Shopkeepers	15	73	12	49
Students	7	67	26	60
Teachers	9	71	20	56
ALL	14	69	17	52

Table 1 Distribution of depths of answers

	Israel N=201	Total N=1897
11. What is the main factor that influences the rate of inflation?		
1. The quantities of goods people buy	12%	11%
2. The rate of business growth in the economy.	04%	18%
3. The level of expenses by the government.	40%	28%
4. The quantity of money in circulation in the economy.	43%	43%
12. What will happen to inflation if the interest rate increases?		
1. If the interest rate increases, the demand for consumer goods will diminish, and inflation will increase.	9%	16%
2. An increase in the interest rate will diminish the quantity of goods people buy, and inflation will therefore drop.	57%	31%
3. If the interest rate increases, inflation will increase too, regardless of the quantity of goods bought by consumers.	19%	32%
4. Interest rates have no significant effect on the rate of inflation.	15%	20%
13. What is the best way to fight inflation, in your opinion?		
1. Enable people to borrow more money readily from the bank.	1%	6%
2. Lower the interest rate.	25%	48%
3. Encourage people to consume more.	11%	16%
4. Reduce the ability of people to buy goods.	62%	30%
14. How does the availability of money affect inflation?		
1. The more money is available, the more people buy goods and this decreases inflation.	4%	17%
2. An increase in availability of money causes an increase in the quantity of good people buy, and therefore a rise in inflation.	77%	51%

3.	The more available money there is, the more inflation decreases, regardless of how much goods are bought by the public.	7%	12%
4.	The availability of money bears no significant relation with the level of inflation	12%	20%

Table 2 EMQ – inflation questions (breakdown of answers for each question)

Answer					
Group	1	2	3	4	Total
I1					
Independent	7	2	44	46	54
Manager	6	8	42	45	65
Teachers	21	3	36	40	72
I2					
Independent	7	54	20	19	54
Manager	5	69	11	15	65
Teachers	15	46	26	13	72
I3					
Independent	2	30	2	67	54
Manager	3	17	9	71	65
Teachers	0	31	21	49	72
I4					
Independent	4	76	4	17	54
Manager	2	88	6	5	65
Teachers	7	65	11	17	72

Table 3 EMQ - breakdown of answers (see Table 2) by occupation. Modal answer in bold

Statement	Mean	HiSchl	Shop	Stud	Teach
1 There is inflation in the economy when the prices of goods increase steadily.	83	76	78	92	86
2 When lots of money is printed, it loses its value. For high school students, more money is always to the good.	83	64	92	84	90
3 Inflation can be expressed by a one-time spurt in the prices of goods. <i>This question studies the perception of inflation as a process. Answers where the process motif were present were: Hi 14 Shop 21 St 21 Teach 20 [all values are in percent].</i>	33	30	39	30	31
4 If I had to take a loan during a period of high inflation, I would prefer an index-linked loan than one that is not indexed to the COL index. <i>For many high school students, "better indexed to the COL, since if the index will increase, you benefit". To them, apparently, indexed-linked is good, without much further understanding.</i>	16	28	16	8	10
5 When export is larger than import, inflation decreases. <i>Explanations are based on the facile parallel of selling and buying. If you sell more than you buy, you are better off. The link to inflation was little more than the notion that good things go together.</i>	84	76	84	80	96
6 The banks benefit from rising prices. <i>Feelings of resentment towards the banks were expressed by: Hi 14, shops 19, St 15, and Teach 17.</i>	71	62	74	68	80
7 Higher taxes decrease the value of money. A prevalent explanation was simply that if more taxes are taken out of your salary, you have less: "You have less money if they take more taxes". Such explanation accounted for : Hi 18 , Shop 15, St 17, Teach 10 whereas macroeconomic accounts were attempted by : Hi 4 Shop 6 St 6 Teach 14	39	40	43	34	39
8 High inflation benefits some economic agents. <i>Very few manifestations of resentment in the various groups</i>	78	78	88	80	65
9 A slowdown in production will increase inflation. <i>Like in statement 5, the link to inflation was little more than the notion that good things go together.</i>	73	68	76	74	74

10 Subsidies to basic expenses (milk, bread, public transportation) decreases inflation.	49	62	55	44	35
<i>The converse of question 7: If there are subsidies, inflation will affect you less. Such explanations were given by: Hi 14, Shop 14, St 15, Teach 12 whereas macroeconomic accounts were attempted by: Hi 9, Shop 13, St 8, and Teach 13.</i>					
11 Buying something today is much more expensive than in the past.	55	90	51	42	35
<i>This is factually true, if an absolute viewpoint is taken. Relatively to earnings, things are of course different. Absolute accounts were given by: Hi 28, Shop 14, St 16, and Teach 10 .</i>					
12 The cost of living index is decided by the government according to its own needs.	40	54	35	40	31
<i>Resentment was only expressed by 5-8 (out of 30) according to the group. The central role of the government was mentioned by : Hi 17 Shop 8 St 7 and Teach 9.</i>					
13 When demand exceeds supply (offer), the price of goods go down).	8	16	6	8	0
14 When banks give a high credit to the customer, this enables them to maintain their high standard of living.	53	60	47	50	55
15 Customers have an influence on inflation.	75.8	80	53	82	88
<i>This was explained in aggregated terms by: Hi 24, Shop 25, St 24, and Teach 26.</i>					
16 The best situation is when there is no inflation at all.	54	58	51	58	49
<i>Rather surprisingly, almost half the subject did not endorse this statement, despite the negative valuation of inflation.</i>					
17 The COL index is determined by the government.	53	67	50	43	50
<i>Again, centrality of the government is mentioned by: Hi 20, Shop 6, St 9 and Teach 13.</i>					

Table 4 IUQ – Inflation understanding questionnaire (percent agree)

Cause	Group				Mean
	HiSch	Shopkeeper	Student	Teacher	
Supply/Demand	76	76	76	82	78
Competition	66	82	70	74	73
Costs	38	56	62	72	57
Consumer	28	26	26	26	27
International trade	40	18	22	20	25
Government	36	16	24	4	20
Value	16	26	20	16	20

Table 5 -- Price determinations (percent mention)

FIGURE CAPTIONS

- Figure 1 Main associates of inflation (across groups)
- Figure 2 Concepts to Link
- Figure 3 MDS Semantic field of economic concepts across groups
- Figure 4 MDS for each group

TABLE CAPTIONS

Table 1 Distribution of depth of answers

Table 2 EMQ – inflation questions(breakdown of answers for each question)

Table 3 EMQ - breakdown of answers (see Table 2) by occupation - Modal answer in bold

Table 4 IUQ – Inflation understanding questionnaire (percent agree)

Table 5 Price determinations (percent mention)