

On the relationship between economic competence and the individual level of agreement with market economy

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Abstract: A series of studies in several countries tested the economic understanding of people, particularly students. The performance of the subjects is typically conceived as showing “deficits”. These alleged deficits seem to correspond with scepticism towards market economy. Better test scores in general correlate with higher appraisal of market society. Could therefore a better understanding influence the attitudes towards phenomena of economic life, like competition, unequal income distribution and other characteristics of market economy? This paper identifies different factors influencing both the levels of economic understanding and the attitudes towards economy. It analyzes results of empirical studies and, as a conclusion, develops an “influence model” reflecting the connection between the form of perception of market-induced phenomena, i.e. economic competence, and the evaluation of these phenomena. The model is the fundament for the design of forthcoming studies.

Key words: economic competence; economic attitudes; market economy; didactics of economic education

1. Introduction

The economic system in a democracy requires legitimacy. But the activities within economic policy, which in general aim at improving living conditions, are frequently seen with a strong scepticism, particularly by the citizens of the European Union. So researches on attitudes towards economic institutions and policy measures are of substantial interest to politicians. Since functional conditions of market economy are relatively complex and do not resemble the structure of individual private households, formal economic education is assumed to be a prerequisite for understanding them. Thus, we assume a positive correlation between the level of lay subjects' understanding and their level of agreement with fundamental aspects of market economy. This correlation is the focus of our paper and of our future empirical research¹.

We want to elicit the strength of this relationship because we think it affects main objectives of economic didactics. Economic education aims to empower pupils with competence to evaluate and to decide on economic situations as well as on economic policy. Therefore, in the first part we will focus on the didactic aspects of our approach and particularly report on empirical studies about the status of economic literacy.

In the second section, the concept of economic competence will be discussed. On the one hand, we will give an overview about research results concerning the cognitive development of economic competence and factors influencing this development. On the other hand, we present the (non-normative) competence model underlying

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¹ Our didactical approach is part of multidisciplinary project on *Market Economy and Justice*.

our prospective study.

In addition to economic competence and the level of general cognitive development, other factors play a role in the perception of social institutions. For example, various studies suggest a cultural stamp that indicates value judgements. A further factor can be the socio-economic background of the individual. The third section will report on these studies.

As a conclusion of analyzing existing studies, we finally present an “influence model” reflecting the connection between perception and evaluation of market phenomena and the degree of economic competence. It will include moderating variables like culture bound social representations, socio-economic status and curricular conditions. The paper ends sketching the methodological approach for further research.

2. Economic competence and agreement with market economy—A question of didactics?

A wide agreement in the scientific community of economic didactics exists about the objectives of economic education in school. As a part of general education, it ought to enable learners, confronted with economic situations, to decide and act in an adequate and thoughtful way. Finally, they should be able to form these situations, and they should be interested in doing so in order to secure and improve society as one worth to live in (DeGöB, 2004). All these are required from individuals in different roles: as a consumer, as an employee or employer and as a citizen. We are focussing on the last one. As citizens people have to judge economic policy as part of the general framework of society, e.g. a market economy.

To understand the existing framework thus refers to the understanding of markets as a theory-laden concept. As theoretical concept competition's systemic effects, the key mechanism of free-market economy, are not directly observable. Economic education aims to build up the necessary competence to conceive. It is a competence divided in the dimensions of (1) economic knowledge and thinking, (2) using economic knowledge and thinking in relevant situations, and (3) economically reflected value judgements (Beck, 1993).

The objectives of economic education concerning value judgements are not affirmative ideology. They do neither contain “...blind acceptance of neo-classic free-market economics...” nor “...developing positive attitudes to industry...”, but education wants “...to develop individual capacity in critical thinking and informed decision making” (Ford, 1992, p. 26). If people did not need economic competence to give value judgements on economic policy, the legitimacy of economic education as a part of general education would be unsoundly based.

Besides a feeling of justice, people have to have domain specific understanding. An evidence-based, not statistically validated study of Carrithers and Peterson (2006) reinforces this position. Students of the business and economics unit at the authors' university in Seattle on one side and students of theology classes on the other side gave contradictory value judgements about market economy. Often the first ones did not even see a connection between justice and economic system, the others evaluated market economy as unjust in general. Carrithers and Peterson (2006, p. 375) conclude, “They fail to address opposing ideas critically because they lack any context to do so. ... Armed with only one side of an enormous, complex issue, or unable to navigate the lines of the debate, they will not be equipped to help design social policy”.

Insofar we are convinced that our project is an important issue on the agenda of economic didactics. Didactics as a science does not only research on the learning-process itself, i.e. contents, objectives, media and methods, but also on the individual and social conditions and consequences of (economic) education. The fundamental question in this context is: Why do we need economic education?

As mentioned above, studies about economic literacy state “deficits”². These deficits are better taken as indicators for the development of economic competence and thus integrated with further developmental results of these studies. If this development correlates with negative attitudes or even disagreement with market economy, economic education could help strengthening legitimacy and democratic development of economic institutions. The majority of German studies are based on a translation of the US-American Test of Economic Literacy (TEL). Walstad and Larsen (1993) first used it in a US-American study with adults and concluded: “Unfortunately, most Americans know little about economics” (Walstad & Larsen, 1993, p. 1226). The first German application of the test showed similar results (Beck & Krumm, 1994).

Following studies comprised students of all kinds of secondary schools (Sczesny & Lüdecke, 1998; Müller, Fürstenau & Witt, 2007) and one tested university entrants (Beck & Wuttke, 2004). In sum, the students could seldom answer more than 50% of the questions correctly. In another test, not based on the TEL, secondary school students reached a rate of right answers between 29% and 59%, depending on school type and curricular settings. This was conceived as at least partly deficient by the authors as well (Würth & Klein, 2001).

Afterwards we will discuss the reasons for these results. According to the knowledge about formal education as a crucial factor of developing economic competence, we will then integrate the curricular frame as one variable in our influence model.

3. Factors influencing economic competence

3.1 Cognitive development

One crucial finding is that the cognitive development of economic understanding takes a Piagetian path. The understanding develops from the tangible to the abstract. Thus, age and years of schooling are probably the most important factors to explain economic understanding.

Claar (1990) as well as Furnham and Lewis (1986) analyse preceding studies beginning from the 1950s. These compilations discuss a lot of common results, they however show quite a few differences. They identify four to six stages of development in economic understanding. These stages are often formulated vague and are at the moment not interesting in detail. The decisive—in a Piagetian framework not very astonishing—point is an increasing generalization of economic concepts corresponding to the general cognitive development. This means, with growing age these concepts can be applied to more and more complex circumstances (Claar, 1997, p. 197). In the beginning, interpretations of economic situations and terms are subjective and related to the own horizon of experience. Later the concepts are integrated in a system of relationships and not seen in an isolated way (Furnham & Lewis, 1986).

Typically the research design includes interviews about categories seen as economically fundamental, e.g. money, price, value, profit or trade. The interviewees regularly are children and adolescents in the age between 5 and 17. Claar (1990) additionally includes adults as a comparison group. Younger children interpret economic transactions from the perspective of a single actor and have no understanding of systemic dependencies (Leiser, 1983). In the study of Claar (1990), the youngest, 10 years old participants, link the value of a good to its size. Later they are able to recognize the importance of production costs influencing the price and only adolescents (>15) integrate competition and profit-seeking in their calculation.

² We limit the reflection in the main to German studies. There are also surveys in other industrialized countries with similar results as in Germany, but we have not done an intensive literature analysis yet. That will be one of the tasks in our project.

Not only cognitive psychologists' but also social psychologists' studies about social representations of economy illustrate that "...the types of definitions employed seemed to evolve toward the use of more abstract notions" (Vergès & Bastounis, 2001, p. 22). To sum it up in the words of Leiser and Halachmi (2006, p. 11), one of the latest studies upon cognitive development in our context: "As expected, age had a highly significant effect".

Nevertheless "the literature on children's and adolescents' understanding of the economic world is highly diffuse and of varying quality. ... There is, however, a good deal of disagreement about the number of stages, the points of transition and the exact understanding in each stage" (Furnham & Lewis, 1986, p. 44).

A series of studies suggested a connection between the described development and everyday experiences of the respondents. Leiser and Halachmi (2006) for example argue in this way. They presented children, aged from 6 to 12, short stories dealing with changes in demand and supply and the effects on prices. The answers showed a better understanding of changes in demand and their price-effects. The authors take that as a proof for better understanding of issues inside the horizon of experience. Children act as buyers and take the seller's price as given because he is fixing it. When he recognizes an increasing demand, it's obvious for the children that he raises his price. The authors assume that it is not just as easy to understand why a seller should fix another price when the supply increases or decreases.

Other surveys explored national differences in understanding economic issues. For example, African children understood the principle of profit earlier than British. The researchers assumed a connection to the African children's deeper experience in bargaining (Furnham & Lewis, 1986). But overall, the existing results are contradictory. As a conclusion with regard to the studies made in the last 50 years, the influence of general cognitive development seems to be significantly higher than that of experiential involvement (Hutchings, Fülöp & Van den Dries, 2002).

3.2 Gender and socio-economic status

Nearly all tests carried out on economic understanding reveal gender differences in performance. In the Test of Economic Literacy (TEL) female subjects regularly do worse than male subjects. It is a cross-cultural effect, measured in Germany as well as in Austria, Switzerland, the United Kingdom or the United States (Beck, 1993; Gleason & Scyoc, 1995). But also on the Graduate Record Exam (GRE) Subject Test in Economics women achieve lower scores on average (Hirschfeld, Moore & Brown, 1995). The results do not vary upon the different groups of subjects. As a rule these are students of secondary schools or college-students, but in some surveys also adults were tested. Just a few test studies could not reproduce significant gender gaps, e.g. Jackstadt and Grootaert (1980).

Concerning the reasons of these differences various hypotheses were tested. For example, female subjects usually perform worse on multiple-choice-tests. The TEL or the GRE are constructed as multiple-choice-tests, but the gap rested significant even after eliminating that factor respectively after answering questions on presented essays (Hirschfeld, Moore & Brown, 1995). The hypothesis lacking mathematical competence could explain the gap could not be verified also (ibid.).

There is a positive correlation between attitudes in respect of economic matters and test performance³. Male subjects on average show a more positive attitude (Beck, 1993; Hirschfeld, Moore & Brown, 1995), though the possible causal basis of the correlation is of a complex nature (Beck, 1993, p. 98). A German study with older

³ Not only the connection between attitudes and economic test-performance is notable, but also that one between attitudes and economic behaviour. It also shows a gender gap. For example, there are gender-stereotyped ideas on the value of possessing goods with consequences to consumer behaviour (Webley, et al., 2001, p. 9).

students of grammar schools elicited not only a worse performance of girls but also their “fundamental aversion” against themes of economic life, and partially total disinterest (Würth & Klein, 2001).

Social class effects also show up in performing economic competence. For example, middle class children are more familiar with banking vocabulary and working class children have a more thorough knowledge “of the world of manufacturing and production” (Roland-Lévy, 2002). Jackstadt and Grootaert (1980) found that the occupational situation of parents is a variable to explain differences in test performance. Here, socio-economic effects mix up with gender effects. If father’s occupation belongs to one of the categories “professional, business, or managerial position...students’...scores are positively affected...” (ibid., p. 36), “for female students it was the other way round” (ibid., p. 39).

On the other hand, Beck (1993) emphasizes that in his extensive studies on the TEL a correlation between family socialisation and performance was not reproducible. Insofar the results concerning the influence of socio-economic background are as heterogeneous as those on gender. In addition, class differences are recognizable, looking at value judgements about economic circumstances (Furnham & Lewis, 1986) or looking at economic behaviour, e.g. differences in saving behaviour (Lea, Tarpay & Webley, 1987).

3.3 Educational effects

Studies show that educational interventions are effective, but evidence on how they take effect is rather scarce (Berti & Bombi, 1988). Didactically fostered learning yields structures of economic concepts different from experiential learning (Lea, Tarpay & Webley, 1987). Differences show up in tests on an abstract economic knowledge, like TEL or TEU (Test of Economic Understanding), but also in answers to questionnaires about current economic developments and with methods manifesting social representations of economy.

The best predictor for economic understanding concerning educational variables, nevertheless, is the level of formal education in general. Blendon, et al (1997) analysed in a representative survey in the USA views about current macro-economic performance: 53% of college graduates cited the decrease of the unemployment-rate correctly, but only 31% of the non-college graduates. The results on questions about the development of full-time jobs or the inflation-rate showed similar differences. “On average, Americans with college degrees have views that conform more closely to government economic data than those of non-college graduates” (ibid., p. 109). Gleason and Scyoc (1995, p. 208) come to similar conclusions, “Adults who had completed some college scored 2.62 points higher, college graduates scored 3.07 points higher, and adults who had attended graduate school scored 6.53 higher than adults with only a high school education or less”.

Further on, economic education plays a considerable role. Besides the general level of education the economic background knowledge, proven by formal certificates and attendance of respective courses, is a significant indicator of test performance. People who had visited college economics courses reached the highest score in the test of Gleason and Scyoc (1995).

As expected Walstad and Soper (1988) also found in tests with high school students that such with a high school economics course performed better in comparison to those without such a background. Similar results were reproduced in a lot of tests. Beck and Wuttke (2004), e.g., examined university study beginners with the TEL and found competence advantages of subjects with a degree in vocational training. Another study showed more precise concepts on economic categories like gross national product, national debt, balance of payments or exchange-rate when people had received economic training in earlier times (Zappalà, 2001). Otherwise concepts were often rough and vague: Claar (1990) compiles relevant intervention studies which all come to the conclusion that children develop a better understanding on economic terms and concepts when they are presented targeted

stimulations in school instruction.

Age and education, and especially economic education, are insofar significant factors influencing economic competence with homogeneous results proved in various studies. Thus we can reassuringly assume a positive effect of formal economic education on the level of economic competence. The correlation, therefore, is a salient part of our influence model. Müller, Fürstenau and Witt (2007) found an increasing probability of correct solutions in the TEL when topics are to be found in the curriculum relevant for the students. It is therefore necessary to deal with this effect in our research. We will thus analyse how economic education is implemented in curricula of schools. To examine this correlation is also a desideratum because until now researches on economic education in schools have been very limited (Hutchings, Fülöp & Van den Dries, 2002).

However, even if economic education is implemented in curricula, it is not sure that economic competence increases. It depends on the form of curricular integration, on teachers' willingness to teach economic issues and on the economic attitudes of teachers, too. For example, "education of economic and industrial understanding" is a cross-curricular theme in the English national curriculum, but there exists a tendency of teachers to avoid such issues—a tendency also observed in other countries across Europe (Hutchings, Fülöp & Van den Dries, 2002). Nevertheless we will analyse curricula, because we assume a general relation between domain-specific curricular embodiment and professional training of the concerned teachers, also assuming as a consequence a higher willingness to teach economic issues. Taking this last assumption on the willingness to teach economic issues with the fact that domain competence of teachers (professional training)⁴ and performance of students correlate positively (Bosshardt & Watts, 1990), it is thus plausible to include the relation between curricular importance of economic matters and economic competence into the major framework of our research scheme.

4. Attitudes on market economy and economic policy

In didactics, it is usual to speak of "value judgements" describing educational objectives. This is a consequence of the fact that economically shaped situations always require individual decisions. The pedagogically targeted process of decision making ought to include a reflection of social consequences, i.e. value-related consequences for the individual himself and for other individuals. A "rational" decision thus includes an economic and a moral dimension. Value judgements in this strict sense presuppose economic competence.

Therefore, if a questionnaire demands value judgements the items should be designed in a way that test persons are to answer from a point of view neutral in regard of economic issues and situations (Liebig, 2002; Seeber, 2008). The design of an empirical study looking for a connection between competence and judgements has to avoid producing only a methodological artefact by measuring the dependent variable in categories of the independent. Therefore we will ask for attitudes also with items requiring judgements in a broader sense, that means without requiring an economical or political analysis. This is a usual construction in empirical studies without distinction between value judgements and attitudes. Attitudes are then "conceived of at the individual level as a cognitive (internal) representation combined with a response disposition (external)..." (Furnham, 2001, p. 118).

⁴ We have to refer to the fact that a connection between curriculum contents and professional teacher training cannot be taken for granted. In Germany with its federal constitution economic issues in general schools—not in vocational schools—are taught in the majority of the federal states by teachers without specific training in economics and business.

If people are questioned about their attitudes on economy as a field of politics, respectively as a market system, a majority agrees with systemic rules or approves basic notions explaining market economy. In 2005 a representative survey in Germany showed that 55% justified income-differences as incentives, as result of individual performances and as a condition of the market principle (Krömmelbein, Bieräugel, Nüchter, Glatzer & Schmid, 2007, p. 66). In another 2007 poll 47% preferred to live in a liberal state and only 37% preferred a welfare-state. On the other hand, 42% considered a welfare-state to be more just and only 30% a liberal state (Frankfurter Allgemeine Zeitung, 2007, p. 5). And 90% in the firstly mentioned survey did not agree with the level of income-differences, despite their general positive attitudes on that matter. In the International Social Justice Project too, a majority of subjects in 13 nations tended toward an egalitarian distribution of income (Liebig, 2002).

Similar results showed a Hungarian study with students and young professionals: “While the most important features of a well-functioning society were considered to be free economic competition, market-led economic processes, and significant income differentials, at the same time respondents expressed their wish for full employment and for the state to care for the weak” (Fülöp & Berkics, 2002, p. 131). Adolescents had similar views (*ibid.*, p. 135). In Germany as well, secondary school students associated profit-seeking with market economy but not justice, notwithstanding a general positive attitude (Würth & Klein, 2001). We face a paradox: Overall people agree with the institutional system of a market economy but in system-internal details they maintain a deep scepticism. Concerning market economy as a general rule-based institution attitudes are more likely positive, concerning the results of market processes they are more likely to be negative (Seeber, 2008).

Recent changes of the economic conditions, such as globalization, competition of nations and the thereby stimulated “reforms” in social policy and welfare institutions, particularly in the EU-Member-States, are seen as a cause of this tension between fundamental agreement to the rules and a felt justice-gap in reality. We consider these developments as a reaction to the generally dynamic and competitive market economy. The system has not changed, but the conditions. Now, economic didactics has to ask if these distortions are a result of lacking economic competence to differentiate the market system in different contexts (in particular national economies and global economy) or a phenomenon rendered by other factors (e.g. horizon of historical and social experience).

Blendon, et al (1997, p. 116) hold the rather low level of economic knowledge of Americans combined with a lack on belief in market forces responsible for respondents’ difficulties to make accurate assessments of how economy is performing. Those subjects believe, for instance, that increasing prices are a result of companies’ manipulations and not due to the mechanism of supply and demand. Leiser and Ganin (1996) examined Israelite adolescents’ economic values using an inventory with eight scales: (1) Support of the free enterprise system, (2) trust in business, (3) economic alienation and powerlessness, (4) government is responsible for social welfare, (5) against government role in price setting, (6) against powerful unions, (7) workers receive fair treatment, and (8) against the economic status quo. Parallel they tested the level of economic competence. Multiple regression brought as one of the most important and significant findings that adolescents with a higher score in economic competence supported the concept of a free enterprises more strongly. The others were not especially alienated, but rather sceptical. Further on, those with less economic knowledge supported the welfare function of the state⁵.

Personal attitudes influence individual behaviour. The economic behaviour of people, e.g. as consumers or employees, is influencing the course of economy. “In short, economic affect may be at least as important as

⁵ There was also an age effect, e.g. older respondents supported the welfare function more than younger (*ibid.*)

economic cognition in influencing economic behaviour, especially when public choice issues are in question” (Soper & Walstad, 1983, p. 4). A review of studies concerned with the relation of economic knowledge and economic attitudes done by Walstad (1996, p. 179) shows that “increased economics knowledge and more instruction in the subject significantly influence that attitude development”. In accordance to Walstad’s (1997, p. 203) statement “...economic knowledge has a direct and significant effect on public opinion about many economic issues”, and in addition to the referred findings, it is worth to explore the influence of economic knowledge on the level of agreement to notions and to reality of market economy.

Some other influence factors on personal attitudes, like the general social representations surrounding the individual, are known (Furnham, 2001). “Social representations are social forms of knowledge, free from scientific constraints...” (Roland-Lévy, 2002, p. 68). Research on social representations explored cultural effects. It could prove cultural differences even on regional levels (Zappalà, 2001). They are induced of different collective memories, “made up of events as well as ideas, values and norms” (Vergès & Bastounis, 2001, p. 20). For economists these representations are part of “informal institutions”.

In Europe a special attention has to be paid on the differences between older EU member states and transformation states as this difference implies a divergent relationship between formal and informal market-economy institutions. There was a rather smooth co-evolution in older member states. Transformation states’ formal institutions have been rapidly changed, resulting in tensions between formal and more slowly developing informal institutions.

Various studies have shown attitudinal difference between members of transformation-states and Western EU members. For example, competition is more consciously perceived and made responsible for possible relative welfare losses (Fülöp, 1999). Hungarian adults “when comparing the present economic and political system with the former socialist one, evaluated the present system more negatively and showed little trust in the future” (Furnham, 2002). Because the change of mentalities (informal institutions) is slower than the change of the formal institutional framework, there should be a special focus on education, as a means to influence mentalities (via the cognitive and affective dimension). Accordingly a course in economy can also change students’ attitudes to market economy in transformation states (Fülöp & Berkics, 2002).

The socio-economic status of people is a last, but not at all negligible factor influencing attitudes. For example, middle-class subjects tend to explain wealth and poverty by personal characteristics. Richer people are assumed by middle-class children to work harder, to be more intelligent, to be better human beings at all and so on. Upper- and middle-class students have a more liberal attitude and a more positive view on free market, and lower-class students tend to be appealed more by a state-controlled and interventionist system (Leiser & Ganin, 1996).

5. Economic competence: Modelling suggestions

In Germany, educational standards are discussed particularly since the first PISA-survey. Theoretically standards have to be based on competence-models, designed for the various subjects in school. The models are oriented at the example of the PISA-survey and therefore designed in the manner of cognitive psychology. They should reflect the different competence-dimensions of the domain, including fundamental ideas of specific terms, basic knowledge, mental operations and domain-specific methods (Klieme, et al., 2003). In addition to these dimensions developmental levels of competence should be defined.

Although such models are discussed since years, there is none in the field of economic education, at least not an empirically based one. We firstly recur to a proposal of the German Association of Economic Education (DeGöB, 2004) with regard to the demanded dimensions. Secondly, we deduce a minimum age of our test persons from the results of the referred development studies regarding their necessary cognitive level.

In general we differentiate between a participant's and an observer's perspective. Knowledge about economically shaped situations of everyday life people acquire first of all in personal experiences. A participant's perspective will be developed out of itself (Leiser & Ganin, 1996). In comparison the observer's perspective in its complexity and because of its not experience-based structure, which is specific for the economic domain, needs educational interventions. People have to shift "from conceiving the economic world in individualistic terms to apprehending the complex system of relationship involved in economic life" (Lea, Tarry & Webley, 1987, p. 376).

Since we will discuss competence and the legitimacy of a market economy, circumstances are concerned which require this observer's position. Markets' coordination results—as systemic effects—are not present and intended in individual market related actions (participant's perspective) and thus insight into this mechanism does not emerge from these actions. We consider the partial neglect of this circumstance as a reason for the alleged "deficits" in test results of students mentioned above.

Market is not meant here as a concrete place of exchange, where multidimensional individual actions take place, but as a system of social coordination connecting the economic dimension of uncountable actions. As such it gives rise to efficient allocation of financial and other resources (Remmele, 2008).

Competences linked to the observer's position the DeGöB (2004) subsumes under "ability to explain associations of the economic system" and "ability to understand and create framing conditions of the economy". Because value judgements are assumed to be an inherent part of economic competence the DeGöB has included another dimension: "Ability to judge on conflicts ethically and in perspective". It is expanding the economic competence in a sense that it gets part of civic education. These three dimensions are touching the field of our research.

Those reflections are important for the design of a study to validate an influence model like it is presented in the following section. On the one hand, items covering the required observer's competences have to be constructed; on the other hand, the test persons have to have reached a cognitive level allowing them to understand complex economic phenomena. The studies referred before lead to the conclusion that the students should be older than 15 (and for methodological reasons we need a younger control group).

6. The influence model

The pivotal aspect of our research interest is the connection between the degree of economic competence, focused on a systemic understanding, and value judgements on market phenomena. We found strong hints about other factors influencing people's attitudes. The following visual representation of our influence model includes these relevant variables.

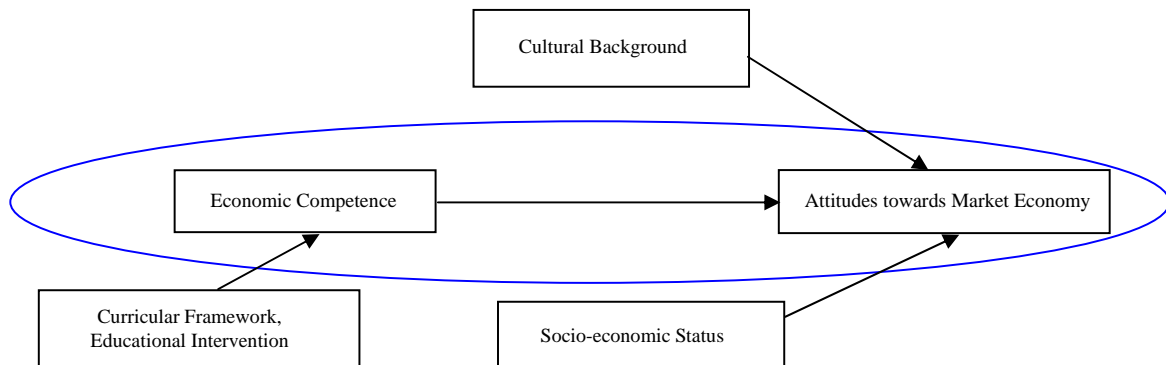


Figure 1 Influence model

We are not heading for a new stocktaking of economic competence in general but for a scoring of the ability to take up the outlined position of an observer. To this purpose traditional tests are not enough. Usually these are literacy-tests assessing a fundamental declarative knowledge within a domain. Conceptual knowledge is only partly tapped. Apart from that they are created to measure competence in a general sense, but we are focusing on specific dimensions, concerning contents of economic knowledge as well as dimensions of competence.

Nevertheless, the TEL with its concentration on textbook-knowledge of economics is relevant. It is proved valid as a measuring tool. It consists of items assigned to four content areas: basics, micro-economics, macro-economics and international relations. The items measure economic knowledge on five levels of complexity within the Taxonomy of Educational Objectives of Bloom (Beck & Krumm, 1994). Even if the test proved successful in certain methodological aspects there remain inconsistencies with regard to the levels of performance: the objective “transfer” shows better scores than “understanding”, which is conceived a pre-condition of “transfer” and thus assumed easier from the theoretical perspective (Müller, et al., 2007). We therefore use in our study only a choice of items relevant to our aims and add another way of measuring economic competence. The selection of items (observer’s position; dimensions of DeGöB) is possible because it is guided thematically.

The instrument of concept-mapping will complete our test of economic knowledge. It is relatively new in the pedagogical context and is—as far as we know—never used as an assessment tool to test economic competence in the context of general education⁶. The tool includes a task to elicit structured knowledge, a response format and a scoring system (Ruiz Primo, 2000). There exist different techniques to carry out the tests. In our framework low-directed techniques requiring knowledge on a higher level are of primary interest. Firstly, students are asked to construct a map of concepts of the knowledge-domain. The concepts are represented by domain-specific terms. Finally, a graph with nodes (concepts) and captioned linking lines emerges. It is a visual representation of meaningful relationships (Iuli & Himangshu, 2006). The titles on the lines explain the relationship between pairs of concepts. Interviews of experts lead to a blueprint of the concept-map. This expert-map with relevant concepts and linking lines is used as a benchmark to measure performance. This benchmark is a crucial difference to the concept-mapping in social psychology to study social representations (Zappalà, 2001). To measure students’ performance by underlying expert-maps leads to a so-called convergence score, representing “the proportion of accurate propositions in the student’s map out of the total possible valid propositions in the criterion map (expert’s map)” (Ruiz Primo, 2000, p. 6). Software tools for the analysis are available (Weber & Schumann, 2000). Ruiz

⁶ Concept-maps as assessment tools were already used in the field of vocational education to tap knowledge about business administration, i.e. by Weber 1994.

Primo and co-authors proved in a whole string of validation-studies the suitability of concept-maps as assessment tools. A comparison of different test-techniques resulted in findings of which two are crucial for our purposes: (1) “The convergence score...seems to better reflect systematic differences in students’ connected understanding and it is the most effort and time efficient indicator”. (2) “Construct-a-map with assessor-generated concepts is the technique that most accurately reflects student differences on connected understanding” (Ruiz Primo, 2000, p. 13).

The independent variable in our influence model “economic competence” will therefore be tapped by two kinds of analysis. The dependent variable “attitudes” will be measured on the basis of existing surveys (i.e. Soper & Walstad, 1983). Salient issues of market economy and general attitudinal dimensions (see above) will be distinguished. The items will be constructed to easily perform a quantitative analysis, e.g. Likert-scales. The effects of gender and socio-economic characteristics on competence and attitude will also be analyzed. We intend further on to conduct an international follow-up study in order to estimate the influence of cultural differences.

We also assume a connection between curricular conditions and the degree of economic competence. If this will be proven, we are able to generate suggestions for educational policy in respect of school-curricula. We will thus analyse the amount of economic contents in national curricula and test the correlation between these results and the level of economic competence. Our test will be based on a criteria-catalogue deduced from the expert-maps generated before (see above). The results of the content-analysis will be transferred from verbal description into ordinal-scaled scores. These scores represent the degree of fulfilling the pre-defined objectives and allow a correlation-analysis.

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