

10 The Necessity for Well-Founded Teacher Education in Economics – Findings from Curriculum Analyses

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10.1 Introduction

Everybody has to make daily decisions requiring a good understanding of political and economic systems to manage and design our life but also to react on changes in these systems. Already in the early stages of adulthood, individuals need to decide on which job to choose, which party to vote for or on what money to spend on. For all these activities economical knowledge is necessary, which usually derives from economic education taught in schools in several subjects.

Against this background, there is a growing consensus in literature and policy that the support of economic competence should become a core component of general education systems (Dubs 2011; Retzmann et al. 2012; Kaminski 2001; Beinke 2004). In accordance with that, most German states' school curricula take the development of economic competence into account nowadays. Despite, survey studies found that young adults show a severe lack of economic competence (e.g., Beck 1993; Walstad & Rebeck 2001; Hoidn & Kaminski 2006; Müller, Fürstenau & Witt 2007; Retzmann et al. 2012). Since school education is crucial for adolescents' knowledge, these results suggest that schools fail to impart sufficient knowledge on economics although it is prescribed officially. As several surveys indicate a direct connection between the competences of students and their teachers (e.g., Allgood & Walstad 1999; Rivkin, Hanushek & Kain 2005; Goldhaber & Anthony 2007), the question is raised whether teachers themselves have sufficient economic competence to adequately support their students' learning processes in this topic. Indeed, studies (e.g., Retzmann & Bank, 2012) showed that teachers teaching economics do not have sufficient economical competence. Since especially university provides future teachers with essential content knowledge (CK) and pedagogical content knowledge (PCK) (e.g., Kunina-Habenicht et al., 2013), it is crucial to analyse teachers' learning opportunities for acquiring economic competence within their academic education. Therefore the core question of this article is: "To what extend do prospective teachers of Politics and Economics have opportunities to learn economics within their university education?" Depending on the results, it is

aimed to develop and evaluate a training programme in economics for prospective teachers.

The remainder of this article is organized as follows. First, economic competence will be defined. Then, the development of teachers' economic competence, mainly their domain-specific professional knowledge in economics, will be discussed and brought together with the implementation of economics within general education¹. Next, the model of economic competence will be described and used as the basis for a curricula analysis in general education as well as in university programs for prospective teachers using a documentation analysis approach. The results will be compared to investigate to what extend prospective teachers should be enabled to adequately teach the prescribed economic contents. Finally, the findings will be discussed and further research steps will be presented.

10.2 Theoretical Background

10.2.1 Economic competence

Although the debate about the conceptualization of economic competence has a long history (e.g., von der Aa 1924; Beck 1989; Salemi 2005; Tenfelde & Schrömer 2012; Schumann & Eberle 2014), there is no clear consensus on how economic competence can be specified and what dimensions and contents should be included. The conceptualization of “ökonomische Bildung”² by Beck (1989) is a common construct in German-speaking countries. Beck criticizes the blurredness of the concepts of “ökonomische Bildung” which are sometimes used interchangeably and sometimes refer to nuanced differences in meaning (Salemi, 2005). Beck (1989) analytically separates the construct of “ökonomische Bildung” into single and therefore measurable individual characteristics. In doing so, he defines “ökonomische Bildung” along three dimensions: 1) economic knowledge and thinking, 2) economic attitudes, and 3) economic-related moral judgment (Beck 1989). Hence, these components describe the coordinates of a 3-dimensional space, which can be used to describe positions or economic stances in “ökonomische Bildung”. For example, a tax evader has an excellent economic knowledge and a high level of economic interest. Nevertheless, he cannot be described as being an

1 General education in Germany is organized by each federal state individually. Therefore differences in subjects and contents might occur between the states. Exemplarily the actual study focuses on general education in the federal state Hesse.

2 “Ökonomische Bildung” or – more precisely – the term “Bildung” is a specific German construct and therefore difficult to translate. Bildung is a concept of education that is a lifelong process of human development, rather than mere training of knowledge and skills.

economically educated citizen, since he violates the norms of our society (low level of moral judgement). A comprehensive economically educated citizen must therefore score high values along all three subscales.

Considering the definition of competence by Weinert (2001) in which skills, knowledge and motivational as well as volitional aspects are included, the described concept of “ökonomische Bildung” can be related to economic competence. This is due to the fact that its dimensions of knowledge, attitudes and moral judgment are comparable to the defined aspects of competence. Since the term “ökonomische Bildung” is unique in German-speaking countries and since a holistic definition of competence can include moral judgement as well, the term economic competence will be used within this study. More recent studies (e.g., Schumann & Eberle, 2014) refer to the definition by Beck and confirm this “anatomy” of the term “ökonomische Bildung”. Economic competence is therefore defined as the knowledge and ability to decide responsibly within different restrictions such as competition or scarcity and personal constraints (Beck & Wuttke 2005). Thereby basic economic competence comprises the following basic concepts (see Table 1).

Past studies measuring economic competence have predominantly focused on children and adolescents (e.g., Beck, 1993; Retzmann et al., 2012; Schumann et al., 2010; Atkinson & Messy, 2012; Mandell, 2009). Within the debate over competence and its measurement, research interest has recently shifted from students to teachers, as teachers’ competence and their teaching ability have a substantial impact on students’ learning (Allgood & Walstad, 1999). Recent studies focus on domains such as mathematics, physics or languages (Krauss et al., 2008; Blömeke et al., 2008; Riese & Reinhold, 2012; Blömeke et al., 2011). There are only a few surveys focusing on the measurement of economic competence (McKenzie, 1971; Walstad, 1980; Kuhn et al., 2014; Bouley et al., 2015).

10.2.2 Teachers’ domain-specific professional knowledge

Student performance is influenced by different factors such as student characteristics, class characteristics or teachers’ domain-specific professional knowledge (e.g., Marzano, 2000; Campbell et al. 2004). Teachers’ domain-specific professional knowledge is seen as the most powerful factor (Ball, Thames & Phelps 2008; Hill, Ball & Schilling 2008) and it influences student performance positively (Hattie 2009; Hill, Rowan & Ball 2005; Kunter et al. 2013; Lipowsky et al. 2009).

The model of Shulman (1986) is an often considered model when conceptualizing teachers’ professional knowledge. It differentiates professional knowledge into three components, namely CK, PCK, and pedagogical knowledge (PK). Especially CK and PCK play a core role in developing

teachers' professional knowledge (Ball, Thames & Phelps 2008; Bromme 2001; Hill, Ball & Schilling 2008; Krauss et al. 2008).

Table 1: Basic concepts of economic competence (Soper & Walstad 1987)

I	Fundamentals	II	Microeconomics
1.	Scarcity	7.	Market & Price
2.	Productivity	8.	Supply & Demand
3.	Opportunity Costs / Trade-off	9.	Competition & Structure
4.	Economic Systems	10.	Income Distribution
5.	Economic Institutions and incentives	11.	Market Failures
6.	Money and Exchange	12.	Role of government
III	Macro Economics	IV	International
13.	Gross National Product	20.	Competitive Advantage & Trade Barriers
14.	Aggregate Supply	21.	Balance of Payment and Exchange Rates
15.	Aggregate Demand	22.	Economic Growth
16.	Unemployment		
17.	Inflation / Deflation		
18.	Monetary Policy		
19.	Fiscal Policy		

Despite the fact that both components together are essential to provide sufficient teaching quality (Krauss et al. 2008; Riese & Reinhold 2012, Kuhn et al. 2014), first and foremost PCK has a high impact on students' learning success (Baumert et al. 2010). Moreover, PCK is dependent on CK, as knowledge of the content is a necessary requirement for structuring classroom instructions by focusing on student understanding (Krauss et al. 2008; Neuweg 2010). Hence, only with established basic CK teachers can react, interact, and (in consequence) build up teaching quality and success (Neuweg 2010). Various studies provide evidence that CK and PCK correlate ($r = .81$ for mathematics and physics see Krauss et al. 2008; Blömeke et al. 2008; Riese & Reinhold 2012; $r = .4$ for German and $r = .6$ for English see Blömeke et al. 2011; $r = .4$ for Economics see Kuhn et al. 2014; see also Bouley et al. 2015). Further confirming this connection, teachers who have deficits in CK have been found to have difficulties when it comes to identifying students' misconceptions, providing descriptions or explanations, and implementing appropriate assignments (Halim & Meerah 2002; Thanheiser 2009; Sullivan et al. 2010, 2013). The following section focuses on how teachers acquire CK during their university education.

10.2.3 The importance of opportunities to learn within teachers' university education

In Germany, teacher education comprises two consecutive phases with different focuses. Moreover, the responsibility for teacher certification and curricula lies with the federal states, respectively. While the first phase, university education, is more theory-oriented, providing a solid foundation in subject-matter studies, the subsequent second phase, a practical training, provides first teaching opportunities under the supervision of experienced teachers. This separation and decentralization of teacher education is relatively uncommon in other countries. Usually the entire teacher education takes place in universities or specified schools of education providing both subject-matter and pedagogical studies (Carnoy et al. 2009).

Nevertheless, both phases of the German teacher education model include PCK and CK, but with a different accentuation. While actually there is no sufficient empirical proof regarding the impact of the second phase of teacher education (Weyland 2014; Hascher 2011), surveys show that learning opportunities within the university have a positive effect on teachers' professional knowledge (Cochran-Smith 2005; Kunina-Habenicht et al. 2013; for CK: Blömeke et al. 2008; for PCK: Riese & Reinhold 2012, practical content: Hascher, Cocard & Moser 2004). Moreover, Walstad and Rebeck (2001) show that the attendance of economics lectures increases economic competence.

Following from the direct influence of teacher education at university on the teacher's professional knowledge, it is material for universities to provide respective learning opportunities. The need for such courses becomes evident when taking into account that all federal states have implemented subjects, covering economic topics (see Table 2).

Although there are curricula for economic topics across all types of schools in Germany, each federal state realizes the implementation differently regarding the name of subject and type of school (grammar school (GS) and middle school (MS)). Whereas in some states and mainly in GS specific economics-oriented subjects such as "Economics" or "Politics and Economics" exist, there are others that address economical contents as part of courses. Titled "History Social Studies Geography" or "Social Studies", those kind of courses are more focused on the humanities such as sociology and political science. Especially in Hesse economic topics are studied as part of a subject titled "Politics and Economics," and are taught in middle and grammar school (Schmid, Beckmann & Wiesen 2012).

Table 2: Implementation of economic subjects in Germany

Federal State	Type of school	Economic subject	Combination subject
Baden-Württemberg	MS	e.g., economics-labour-health	
	GS	e.g., geography economics social studies	e.g., social studies
Bavaria	MS	e.g., economics and law	e.g., history social studies geography
	GS	e.g., economics and law	e.g., social studies
Berlin	MS	labour studies	social studies
	GS	economics	e.g., social studies
Brandenburg	MS	economics labour technics	
	GS	economics labour technics	
Bremen	MS	economics labour technics	world ecology (history, geography, policy)
	GS	economics labour technics	world ecology (history, geography, policy)
Hamburg	MS	e.g., labour and work	society
	GS	politics society economics	
Hesse	MS	<i>politics and economics</i>	<i>labour studies</i>
	GS	<i>politics and economics</i>	<i>society studies (labour studies)</i>
Mecklenburg-West Pomerania	MS	labour economics technics	social studies
	GS	labour economics technics	e.g., social studies
Lower Saxony	MS	economics	
	GS	politics and economics	
North Rhine Westphalia	MS	economics and labour studies	history politics and society
	GS	economics and politics	
Rhineland Palatinate	MS	e.g., economics and social studies	
	GS		community studies (geography, history, social studies)
Saarland	MS	labour studies	social studies
	GS	labour studies	e.g., society studies
Saxony	MS	e.g., economics technics household	
	GS	community studies law education economics	
Saxony Anhalt	MS	economics	social studies
	GS		social studies
Schleswig-Holstein	MS	e.g., politics and economics	
	GS	politics and economics	
Thuringia	MS	e.g., economics and law	social studies
	GS	economics and law	social studies

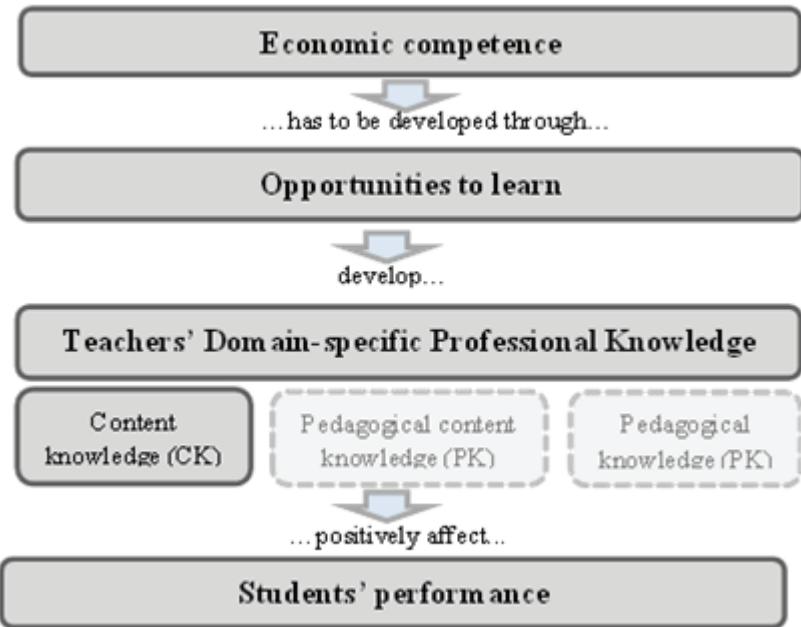


Figure 1: Framework of the causal chain of teacher education in economics

In summary, the theoretical effect chain taken as a basis for this paper focuses on economic competence, its development through economic opportunities to learn within academic teacher education and its implementation and teaching in general education. However, due to the aim of this study, I will rather focus on economic CK as part of teachers' professional knowledge than on PCK and PK (see Figure 1).

Building on this theoretical framework, the following chapter will analyse school curricula and curricula of academic teacher education at different universities, to provide a comparison of the contents covered in teachers' education and the content requirements of the courses they will later teach.

10.3 Curricula Analysis

10.3.1 Methodology

Procedure

For an overview of teachers' requirements in economics within general education, middle and grammar school curricula were analysed. In a second step, learning opportunities for teacher students in the German state of Hesse were analysed to examine to what extent teacher education in Politics and Economics matches the requirements stated in the school curricula.

For the analysis (school and university curricula) the above mentioned categories of basic economic competence (see table 1) were used as a categorical framework. To do so, two raters classified the economic contents within the curricula frameworks published by the state government of Hesse and the module frameworks published by the universities of Hesse based on the categories of basic economic competence. There was a high inter-rater reliability with a kappa coefficient at 0.87.

Materials

The curricula documents consist of a general part "foundation", and a "practical teaching" part, both of which are content-specific. Whereas "foundation" includes tasks, learning objectives and didactic and methodological foundations, the "practical teaching" part covers subject-specific content that is specific for every school form (grammar school and middle school) (e.g., Hessisches Kultusministerium, 2006, 2010). Moreover, the "practical teaching" part also includes cross-references to other subjects, such as economic topics in mathematics. These references are especially interesting for interdisciplinary teaching (e.g., Hessisches Kultusministerium 2010). In general, the requirements within the curriculum are obligatory with optional contents also being offered. The implementation of some contents in teaching is therefore often linked to individual preferences and beliefs of the teachers. On the one hand, this voluntary character offers the opportunity for individual teaching, while unfortunately failing to provide sufficient advice as to whether and to what extend specific content should be covered in the classroom.

The second step is focused on the curricula of teacher education (module handbooks) in Hessian universities (for middle school: Frankfurt am Main, Gießen and Kassel; for grammar school: Frankfurt am Main, Darmstadt, Gießen, Marburg, and Kassel). For both curricula and module analyses, the same rationale will be applied.

10.3.2 Results of the curricula analyses and interpretations

Economic topics in middle school

Generally, in the curriculum for the subject Politics and Economics, microeconomic topics as well as fundamentals largely outweigh macroeconomic and international topics. Especially international contents are hardly considered (see Table 4).

For example, the topic “economic system, social market economy and collective bargaining”, that is embedded in the curriculum of form ten (Hessisches Kultusministerium, 2010), refers to the categories of basic economic competence such as “Market and Price” or “Aggregate Supply”. Nevertheless, beside the fact that the subject Politics and Economics in middle school includes different economic contents these are considered mainly from a political perspective.

Table 3: Economic contents within middle school curricula in the subject Politics and Economics

Form	General Topic	Related Categories of Basic Economic Competence
7	coexistence in family	<i>Fundamental:</i> Scarcity <i>Microeconomics:</i> Income Distribution <i>Macroeconomics:</i> Unemployment
	environment protection	<i>Fundamental:</i> Productivity <i>Microeconomics:</i> Market Failures
9	working within the information society	<i>Fundamental:</i> Economic Systems <i>Microeconomics:</i> Competition & Structure <i>Macroeconomics:</i> Unemployment <i>International:</i> Competitive Advantage & Trade Barriers; Economic Growth
	social issues in the Federal Republic of Germany	<i>Microeconomics:</i> Role of Government <i>Macroeconomics:</i> Unemployment
10	economic system, social market economy, collective bargaining	<i>Fundamental</i> in total <i>Microeconomics</i> in total <i>Macroeconomics:</i> Gross National Product; Aggregate Supply; Aggregate Demand
	equality	<i>Macroeconomics:</i> Unemployment
	traffic and environment	<i>Fundamental:</i> Productivity; Opportunity Costs/Trade-offs
	one world	<i>International:</i> Competitive Advantage & Trade Barriers; Economic Growth

Table 4: Economic contents within grammar school curricula in the subject Politics and Economics

Form	General Topic	Related categories of basic economic competence
7	economic literacy: economic management in households	<i>Fundamental</i> in total
	economic literacy: market	<i>Microeconomics</i> : Marge & Price; Supply & Demand; Competition & Structure
	social state	<i>Microeconomics</i> : Income Distribution; Market Failures
9	economic literacy: economics and labour market	<i>Fundamental</i> : Productivity; Opportunity Costs/Trade-offs; Economic Systems; Economic Institutions & Incentives <i>Microeconomics</i> : Market & Prices; Competition & Structure <i>Macroeconomics</i> : Unemployment
	social state and economics	<i>Microeconomics</i> : Income Distribution; Market Failures
	economic literacy: international economic relations	Fundamental: Productivity <i>Microeconomics</i> : Competition & Structure <i>International</i> : Competitive Advantage & Trade Barriers; Balance of Payment & Exchange Rates; Economic Growth
10	social structure, socio- economic change	<i>Microeconomics</i> : Role of Government <i>Macroeconomics</i> : Aggregate Supply; Aggregate Demand; Unemployment
	ecology and economic growth	Fundamental: Scarcity <i>Macroeconomics</i> : Gross National Product
11	economics and economic policy	<i>Fundamental</i> : Economic Systems <i>Microeconomics</i> : Competition & Structure; Income Distribution; Role of Government <i>Macroeconomics</i> : Gross National Product <i>International</i> : Competitive Advantage & Trade Barriers; Balance of Payments & Exchange Rates
	international relations and globalization	<i>International</i> : Competitive Advantage & Trade Barriers; Balance of Payment & Exchange Rates; Economic Growth
12	aspects of globalization – opportunity – problems- perspectives	<i>International</i> : Economic Growth

Economic topics in grammar school

At Hessian grammar schools, economic contents are primarily covered in the subject Politics and Economics, which is described in the curriculum as basic subject for economic education (Hessisches Kultusministerium, 2010). In contrast to the previously analysed subject Politics and Economics in middle school, in grammar school, foundations of economics, microeconomics and

macroeconomics have a high priority. Hence, general macroeconomic contents such as “labour market”, “economic growth”, “economic cycle”, and “market” are covered several times, but also the perspective of employees (income, qualifications, and work situation) is addressed in grammar school curricula. Moreover, these topics are broadened to economic, business ethics and general policy such as “consumer behaviour” or “social welfare state” (see Table 5). Hence, a connection between pupils’ everyday life and the school lessons is being created.

Comparing the number and the different economic contents related to the categories of basic economic competence within grammar school and middle school shows that macroeconomic contents as well as international economic contents are mainly addressed in grammar school. Nevertheless, most of the categories of basic economic competence are addressed in both types of school.

Economic topics within the university education of prospective middle school teachers

Next, economic modules in university education of prospective middle school teachers provided by different Hessian universities were analysed (i.e. Frankfurt, Kassel, Gießen). Table 6 clearly shows the differences in the implementation of economic modules and its associated seminars at the different universities.

While, for example, at least one obligatory economic module covering economic topics is implemented at the University of Gießen (“economic principles and economic policy”) and at the University of Kassel (“technical principles in economics”), at the Goethe-University Frankfurt this module is only obligatory to choose (“economic principles and labour market”). However, at Frankfurt, most of the economic contents are taught from a political perspective. These findings are similar at the University of Gießen as well as at the University of Kassel, where economic modules are also offered, but similarly to Frankfurt focus primarily on political or social issues instead of economic concepts.

Overall, the analysis shows that teacher education is structured in a way that allows students to graduate and go on to teach “Politics and Economics” at middle schools with very little formal education on economic topics and without a comprehensive understanding of economic concepts or principles.

Table 5: Economic content in university curricula for middle school teacher education for the subject Politics and Economics

University	Modules with economic content	Economic seminars	Related categories of basic economic competence
Justus-Liebig-Universität Gießen	economic principles and economic policy (obligatory)	1) economy mainstreaming 2) governance and institutional cooperation within labour market 3) problems of politics and economics	1.) Microeconomics (7, 9, 10, 12); Macroeconomics (16); International (20) 2.) Microeconomics (12); Macroeconomics (16) 3.) Microeconomics (11, 12)
Universität Kassel	technical principles in economics (obligatory)	1) microeconomics 2) macroeconomics	1.) Fundamental (4); Microeconomics (7, 8, 9, 10) 2.) Macroeconomics (13, 14, 15, 16, 17, 18, 19)
Goethe-Universität Frankfurt	economic principles and labour market (obligatory)	1) labour and employment in transition 2) introduction to political economy 3) money and values	1) Microeconomics (7, 9, 10); Macroeconomics (13, 16) 2) Fundamental (4, 5) Microeconomics (7, 10, 12) Macroeconomics (18) 3) Fundamental (6); Microeconomics (12); Macroeconomics (18, 19)
<i>Fundamental:</i>		1. Scarcity; 2. Productivity; 3. Opportunity Costs/ Trade-offs; 4. Economic Systems; 5. Economic Institutions & incentives; 6. Money Exchange	
<i>Microeconomics:</i>		7. Market & Prices; 8. Supply & Demand; 9. Competition & Structure; 10. Income Distribution; 11. Market Failures; 12. Role of Government	
<i>Macroeconomics:</i>		13. Gross National Product; 14. Aggregate Supply; 15. Aggregate Demand; 16. Unemployment; 17. Inflation / Deflation; 18. Monetary Policy; 19. Fiscal Policy	
<i>International:</i>		20. Competitive Advantage & Trade Barriers; 21. Balance of Payment & Exchange Rates; 22. Economic Growth	

Economic topics within the academic education of prospective grammar school teachers

Universities in Hesse offering programs for becoming a grammar school teacher are more common than universities for becoming a middle school teacher. In addition to the previous three, the University of Marburg and the Technical University of Darmstadt were included in the analysis that follows. Similar to the curricula for middle-school teachers analysed above, there is also a large heterogeneity between Hessian universities concerning the implementation of modules with economic contents in the education of prospective grammar school teachers (see Table 7).

Table 6: Economic content in university curricula for grammar school teacher for the subject Politics and Economics

University	Name of the module with economic content	Economic seminars	Related categories of basic economic competence
Technische Universität Darmstadt	economics (obligatory)	1) introduction to economics 2) introduction to business administration	1) Fundamental (2, 3, 4, 5); Microeconomics (7, 8); Macroeconomics (13, 14, 15, 16, 17, 18, 19); International (22) 2) Fundamental (2, 3)
	economic specialization (obligatory elective)	1) microeconomic 2) macroeconomic	1) Fundamental (2); Microeconomics (7, 8, 9, 11, 12) 2) Macroeconomics (13, 14, 15, 16, 17, 18, 19)
	labour market and social security (obligatory elective)	1) specialization on labour law, in particular: collective labour law	1) Microeconomics (12); Macroeconomics (16)
	business administration specialization (obligatory elective)	1) accounting 2) cost accounting	1) Fundamental (2) 2) Fundamental (2)
	economic principles and economic policy (obligatory)	1) economy mainstreaming 2) governance and institutional cooperation in the labour market 3) problems of politics and economics	1) Microeconomics (7, 9, 10, 12); Macroeconomics (16); International (20) 2) Microeconomics (12); Macroeconomics (16) 3) Microeconomics (11, 12)
Universität Kassel	technical principles in economics (obligatory)	1) microeconomics 2) macroeconomics	1) Fundamental (4); Microeconomics (7, 8, 9, 10) 2) Macroeconomics (13, 14, 15, 16, 17, 18, 19)
Philipps-Universität Marburg	political economics I (obligatory)	1) political economics in Germany 2) introduction to international political economy 3) introduction to political economy	1) Microeconomics (11, 12) 2) International (20, 21) 3) Microeconomics (11, 12)
Goethe-Universität Frankfurt	economic principles and labour market (obligatory)	1) labour and employment in transition 2) introduction to political economy 3) money and values	1) Microeconomics (7, 9, 10); Macroeconomics (13, 16) 2) Fundamental (4, 5); Microeconomics (7, 10, 12); Macroeconomics (18) 3) Fundamental (6); Microeconomics (12); Macroeconomics (18, 19)
	economic and social policy (obligatory)	1) money and monetary policy	1) Fundamental (6); Microeconomics (7); Macroeconomics (17, 18)

For category coding, see Table 6

The already mentioned module “economic principles and labour market” at the Goethe-University Frankfurt is obligatory for prospective grammar school teachers. Moreover this module is complemented by a second economic module “economic and social policy”. However, the discrepancy between the offered economic modules and their limited content of economic concepts and principles within the different seminars of this module is the same as in the module plan for prospective middle school teachers (compare chapter 3.2.3)

A further result is that, in comparison to the previously mentioned universities of Frankfurt, Gießen, Kassel and Marburg, the University of Darmstadt places a stronger focus on the inclusion of economic concepts and principles. Prospective grammar school teachers are required to pass one compulsory economic module (“economics”) and additionally they are obligated to choose one of three (“extended economics”, “labour market and social security”, “extended business administration”). Moreover, these courses are not offered by the departments of social and educational science, as it is the case for example at the Goethe-University Frankfurt, but by the economics department. In addition, the University of Darmstadt offers prospective teachers comprehensive opportunities for specialization in economic topics (e.g. in microeconomics, macroeconomics, and accounting).

To sum it up, the number of economic modules the academic education of teacher students for grammar schools at all Hessian Universities is noticeably higher in comparison with the program for middle school teacher students. Besides, at least one obligatory module with economic content has to be chosen by teaching students of grammar school.

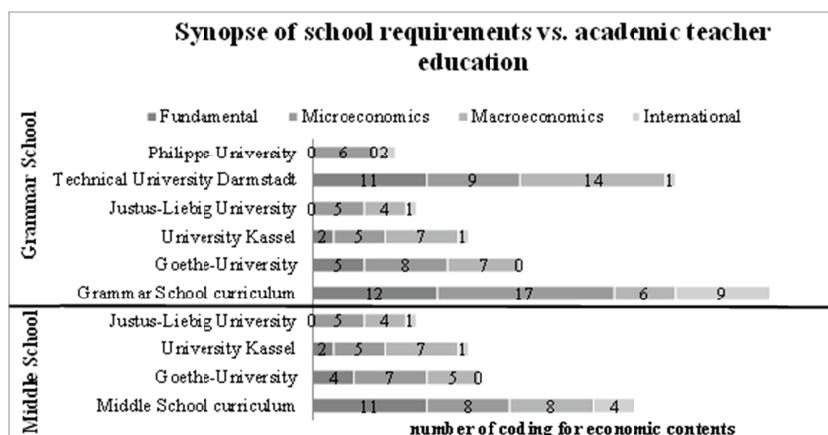
Summary

Results of this study show that the core concepts falling within definition of basic economic competence are almost exclusively implemented as part of the subject Politics and Economics. The analyses of the school curriculum and module plan of the universities show that microeconomic as well as fundamental economic topics receive general attention in these courses, while macroeconomic and international economic themes are hardly addressed in grammar school at all and only addressed by coincidence in middle school. It can be said in conclusion that economic education has become part of the core curriculum today. However, significant parts necessary for a comprehensive understanding are not covered at all. Partly responsible for this shortcoming might be the insufficient academic education teachers receive.

In contrast, the analysis of module handbooks in use at Hessian universities reveals significant discrepancies when compared to the state’s school curricula. Economic topics receive a minimum of attention and when they are covered, only isolated economic issues such as “Economic Institution and

Incentives” or “Monetary Policy” are addressed. Thus, a holistic overview is difficult to obtain for teacher students. Figure 2 shows the number of coding capturing all economic contents within academic teacher education for the subject Politics and Economic in middle school and grammar school in comparison to the appropriate school curriculum.

Figure 2: Comparison of the maximum of economic contents within academic education of teachers and school requirements



However this table shows only the maximum of possible economic content provided in university. Apart from that, even if teacher students were to attend all economic seminars offered, going beyond their credit requirements and potentially extending the duration of their studies, they can hardly cover all necessary content required by school curriculum.

Moreover, the analysis showed that students studying at the University of Frankfurt could theoretically graduate without ever having covered these topics in class. This is partly due to the limited requirements for attendance of such courses but also caused by a lack of seminars on offer that would cover the relevant content. Nevertheless, they will later be required to teach classes on exactly these topics. Among the analysed universities, Darmstadt is the only one with a large number of compulsory and voluntary seminars on economic topics.

10.4 Limitation

The curricula analysis is based on the available module handbooks and school curricula. Hence, the results might not reflect the reality of what topics are actually covered in class. Additionally, in school as well as in university curricula economic contents are formulated on a rather general level and do not specify precise learning objectives.

Moreover, the categorical framework of basic economic competence used here only focuses on political economics and does not cover any business administration contents. Although this framework seems adequate for the categorization of economic contents in general education schools, specific economics courses cover a considerable amount of business administration topics (Schumann et al. 2010). However, in spite of the fact that these issues might have been left underappreciated by the framework that was used, one has to keep in mind that business administration is not yet formally part of general education curricula.

Furthermore, due to the combined teaching of both subjects, politics and economics, many lessons on economic contents in school and university curricula contain both political and economic aspects at unknown weighting. Putting the fact aside that such a combination is highly desirable as it fosters relational understanding aside, it creates difficulties for classifying and quantifying the results accurately. In addition, the extent to which a specific topic is treated in the different lessons is decided solely at the teacher's discretion.

10.5 Discussion and Conclusion

In order to get a holistic overview of what is required in school and to what extend academic teacher education fits these requirements, curricula content in place at Hessian universities and schools was analysed. Next, economic competence of prospective teachers of different universities in Hesse was analysed in order to evaluate to what extend the number of economic courses improves economic competence of prospective teachers. Results of this study show that the number of courses and the level of economic competence correlates. Therefore, by backward induction, the poor performance of German pupils in economics can at least partially be attributed to deficits of economic content in their education, as demonstrated by curricula analyses.

To be a responsible citizen as well as to handle daily situations in life, young adults should be equipped with basic economic competence. To live up to this task, teachers have to receive an education that provides them with

a comprehensive understanding of the relevant topics. This implies the necessity to not only address current requirements in economics but to also address, evaluate and select economic learning situations in class with respect and in consideration of their pupils.

Although flexibility in curricula is desirable, it imposes the risk of topics relevant for the development of economic competence being neglected or omitted due to a lack of professional knowledge on the teachers' part, not as the result of a constructive didactic decision. Hence, subject specific modules or opportunities to learn should be provided at university during the academic education of teachers. However, the results of my analyses of university curricula show that such learning opportunities barely exist.

Prospective teachers can complete their academic education for the subject Politics and Economics without having attended any economic module. Therefore it can be concluded that there is a significant discrepancy between the requirements on the part of schools and the training and knowledge of teachers. Consequently, politicians, regulators and educational institutions must develop curricula that ensure that prospective teachers' economic knowledge meets the demands of a modern society.

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