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Chapter 41

Discrepancies In The Labour Market For RL-Educated Economists

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Introduction

Information on the labour market position of graduates is relevant for various information and policy goals, ranging from educational and vocational guidance to quality control in higher education. In order to collect the necessary labour market information, the Research Centre for Education and the Labour Market (ROA) has developed a labour market scanner for higher vocational colleges and for universities, with which the graduates can be followed during their entire working life, beginning one year after their graduation (Heijke & Ramaekers, 1992).

As of 1992, the ROA annually carries out a nation-wide survey into the labour market position of graduates from higher vocational colleges, the so called 'HBO-Monitor'. Since 1990, ROA has been annually carrying out a survey into the labour market position and the careers of University of Limburg (RL) graduates. The structure of this 'RL-labour market scanner' will be outlined below. This paper goes on to describe the labour market positions held by RL economists, and to examine their opinions of the match between their education and their position.

The Labour Market Scanner

The RL is the youngest university of the Netherlands. At present, the institution consists of six faculties: Medicine (which began teaching in 1974), Health Sciences (1980), Law (1982), Economics and Business Administration (1984), Culture and Science Studies (1991) and General Studies (1991).

Since 1990, ROA has been carrying out an annual survey of the labour market position and careers of RL graduates. This is done with the labour market scanner. The labour market scanner for the RL consists of two instruments. The first is the basic questionnaire, used to survey all former students approximately one year after their graduation. In this postal questionnaire, personal data is requested, as well as

- data on preparatory education, the course completed, labour experience before graduation and principal activities after graduation up to the moment of the survey;

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- the current labour market position and, for those in a paid job, some characteristics of the position they hold and of the organization;
- whether they are looking for (another) paid job and whether they have undertaken training after graduation.

The second instrument is the 'changes' questionnaire. This is a condensed version of the basic questionnaire, sent every five years as a follow-up. With this form the respondent can report changes in his or her labour market position since the last survey. Every year, two surveys are carried out: the basic inquiry for the graduates from the previous year and the 'changes' survey for alumni who graduated five years earlier.

The labour market scanner allows additional questions to be added to the basic and 'changes' questionnaires if necessary. This was first done in the 1992 'changes' survey of the 104 economists who graduated at the Faculty of Economics and Business Administration (FEBA) in the period 1988/90. Of these 104 economics graduates, 71 participated in the survey (a 68% response rate). This paper presents some results of this extended survey. It should be noted that, until 1990, only four majors were offered within the faculty of economics: general economics, business economics, quantitative economics, international management, or a free mix of subjects.

Most (58%) of the 71 economists who responded graduated in 1990, 25% graduated in 1989 and the remaining 17% in 1988. The vast majority (83%) of the 71 who responded graduated in business economics. Only 13% graduated in general economics. Of the remaining 4% (3 respondents), one graduated in quantitative economics, one in international management and the last one in a free mix of subjects. RL economists are predominantly male. Of the 71 respondents, 54 (76%) are men. A small minority had already completed a higher vocational (8%) or another kind of university (6%) education before starting study at the FEBA.

Current Labour Market Position

At the time of the survey almost all respondents (96%) had paid work (for at least 12 hours weekly). This section describes the current labour market positions held by RL economists. Against this background, their opinions of the qualitative match between their education and their positions will be examined in section 4.

The labour market positions of the graduates will be described by occupational sector and by the positions held. The positions are defined by the level and the subject area of the required education.

Table 1 indicates the occupational sector in which the alumni were found. The table shows that most of them work as 'scientists' or in another professional specialisation. Economists also work in administrative functions. These findings have been considerably influenced by the fact that the study population consisted of the first generations of economists who graduated at the RL. A number of these first-generation graduates have found paid work as so called 'Assistant Researchers in PhD-training' (i.e., as PhD students) in the Faculty of Economics and Business Administration at the RL.

Discrepancies in the labour market may occur in the form of so called 'utilization problems', reflected in the degree of under-utilization, over-utilization, or incorrect utilization of the qualifications of employees, and in the effects this has on their productivity in the posts they

hold. These problems arise when someone occupies a post at a higher or lower level than their training prepared them for, or when the subject in which they trained does not relate at all to their function (Van Dam, Ramaekers, & Van der Velden, 1991, pp. 20-22).

Table 1: *Paid working graduates by occupational sector (in %)*

Economist	29
Accountant	21
Teacher	6
Managing and higher executive functions, exclusive of public administration	5
Policy-making functions	11
Bookkeepers, cashiers and related functions, including assistant-accountants	21
Other functions	8
Total n (=100%)	63

Source: ROA

In the questionnaire the respondents were asked what the minimum required educational level was for the functions they then occupied. If this is below their own academic level, this indicates competition with those educated at a lower level and may indicate under-utilisation of their potential capacities. Table 2 indicates the level of education required for the current functions of the economists questioned.

Table 2: *Minimum required educational level for the current function (in %)*

Intermediate Vocational Education	2
Higher Vocational Education	13
University Education, graduate level	46
University Education, post-graduate level	39
Total n (=100%)	67

Source: ROA

Almost one out of seven graduates with paid work performed a function below their academic level and was thus competing with less educated people. A vast majority, however, do perform functions meant for academics. Over one-third work at a post-graduate level, for example the accountants and post-graduate researchers in PhD training.

Besides the minimum required educational level for their current function, the respondents were asked to indicate which field of education was required for the function they occupied. If an education in economics was not required, this indicates that they are competing with those educated in other fields of study.

About half of the economists responding exercise functions for which a major in economics is required, and hence do not compete on the labour market with people educated in other subjects. One out of three has a function for which their own specialisation within economics is a prerequisite. Only one in every twenty respondents occupies a general function for which no specific educational subject is required.

Table 3: *Required educational field for the current function (in %)*

No specific subject	5
Other than economics	2
Economics or related subject	42
Economics, no specific specialisation	13
Economics, other than own specialisation	3
Economics, own specialisation	36
Total n (=100%)	67

Source: ROA

Match Between Education And Occupation

Introduction

The main focus of this paper is the discrepancies in the work situation of RL economists. In section 3, 'utilization problems' were examined. It was found that although the vast majority of RL economists perform functions meant for academics, only half of them have functions for which a major in economics was specifically required. In this section, so called 'content discrepancies' will be examined. These occur when the knowledge and skills acquired in education do not correspond with the knowledge and skills required in occupational practice. It should be noted that only the graduates' opinions about content discrepancies have been investigated. These do not necessarily coincide with employers' opinions.

In order to identify content discrepancies, a list of 18 qualification items was presented to paid working graduates. These qualifications were selected on the basis of the literature on function-analysis (see Algera, 1991) and interviews with experts from the faculty. The qualifications are formulated in such a way that they may apply to people from various working fields. Of the 18 qualification items,

- five items related to *knowledge*: general knowledge about economic theory, knowledge of methods for economics, application of theory, knowledge of informatics, and specialist economic knowledge;
- nine items related to *skills*: writing skills, oral presentation, command of foreign languages, transferring knowledge, dealing with clients, negotiating skills, planning/coordinating/organizational skills, management skills, and analytical and research skills;
- four items related to *attitudes*: self-reliance/taking the initiative, exactitude/accuracy/precision, adaptability/flexibility/improvising, and handling stress/dealing with uncertainty.

The respondents were asked to indicate the relevance of these qualifications for the proper practice of their profession, to indicate to what extent attention was paid to these qualifications during their education, and whether problem-based learning (PBL) has given them a better command of these qualifications than traditionally-educated economists.

Qualifications required in occupational practice

The respondents could indicate the relevance for occupational practice of the 18 qualification items, on a four-point scale. This scale consists of the following categories:

1 = unimportant for occupational practice.
2 = fairly unimportant for occupational practice;
3 = fairly important for occupational practice;
4 = very important for occupational practice;

According to RL economists, attitudes are more important for their occupational practice than skills and knowledge. On average, the attitudinal items were considered to be fairly or very important by 95% of the respondents. The average importance score for skill-related items was 81%. Knowledge aspects scored on average 78%.

We were interested to find out which job characteristics might explain the relevance of the 18 qualification items to proper occupational practice. In order to reduce the amount of information, the 18 qualification items were reduced to 4 orthogonal factors by means of principal factor analysis. The following four factors (eigenvalue >1.0) were distinguished, together accounting for 56% of the variance in the factor analytical model:

1. 'communication' on which, after varimax rotation, the following 6 qualification items had a loading of >.5: negotiating skills, planning-/coordinating-/organizational skills, management skills, dealing with clients, adaptability/flexibility/improvising, and handling stress/dealing with uncertainty.
2. 'assertiveness' on which, after varimax rotation, the following 5 qualification items had a loading of >.5: self-reliance/taking the initiative, exactitude/accuracy/precision, adaptability/flexibility/improvising, handling stress/dealing with uncertainty, and oral presentation.
3. 'knowledge' on which, after varimax rotation, the following 3 qualification items had a loading of >.5: knowledge of the methods of economics, specialist economic knowledge, and transferring knowledge.
4. 'presentation', on which, after varimax rotation, the following 2 qualification items had a loading of >.5: writing skills, and oral presentation.

By means of regression analysis we tried to identify job characteristics which might explain the relevance of these four factors for proper occupational practice. In the regression equations, one respondent-related characteristic and five job-related characteristics are used as explanatory variables for the respondents' scores on each of the four factors. Dummies were devised for all of these explanatory variables. The dummy variables relate to having majored in general or quantitative economics (*general/quantitative economics*), occupying a function for which university education is a requirement (*academic level*), having a job for which education in economics is required (*major in economics*), the combination of working and following post-graduate education (*post-graduate education*), occupying a management position (*management function*), and work in the private business sector (*profit sector*).

As regards these characteristics, it was assumed that:

- for the more scientifically oriented general/quantitative economists, knowledge of economics would be more important than for the more practice-oriented business economists. For the latter economists communication skills, assertiveness, and

presentation skills were expected to be more important than for general/quantitative economists;

- in university-level jobs, and in the private business sector, qualifications which are directly related to productivity (such as knowledge) would dominate over qualifications which are only indirectly productive (such as communication skills, assertiveness, and presentation skills). The latter qualifications were expected to be more important for functions for which university-level training was not required, and in the non-profit seeking sector as compared with university-level jobs and the private business sector;
- in jobs for which an education in economics is required, knowledge of economics will be more important than in more general jobs. In the latter jobs less economics-specific qualifications (communication, assertiveness, and presentation) will probably predominate;
- post-graduate 'on the job' training is more likely to take place in one's own educational domain. Hence, knowledge of economics will presumably be more important in jobs that combine working and studying within the function than in other jobs;
- for working in a management function, qualifications like communication skills, assertiveness and presentation skills as well as knowledge tend to be more important than for exercising non-management functions.

For each of the four qualification factors, a linear regression comparison was then estimated with all the dummy variables. On the basis of the hypotheses above and the way in which the variables have been defined, the following parameter signs are expected with respect to the occupational importance of *communication skills, assertiveness, and presentation skills*:

- negative parameter signs for academic level, general/quantitative economics, major in economics, and profit sector;
- a positive parameter sign for management function.

With respect to *knowledge*, positive parameter signs are expected for all explanatory variables.

The estimation results from the regression equation with respect to the importance of *communication skills* for the proper practice of a profession are displayed in table 4a. The variables included in the regression equation together explain almost half (48%) of the variance in the occupational importance of communication skills. As was expected, communication skills are significantly less important in university-level jobs and for economists who graduated in general or quantitative economics than in lower-level jobs or for graduates in business administration. Contrary to expectations, communication skills are significantly more important in the private business sector than in non-profit seeking organizations. The results also show that communication skills are significantly less important in jobs that combine working and studying within the function, and, as expected, they are more important in management positions, although the effect of this job characteristic is not significant. The effect of working within one's own educational domain, although not significant, does not have the expected sign.

Table 4a: *Results of the regression analysis for the occupational importance of communication skills*

Variable	Regression coefficient	Standard error
Constant	0.08	0.30
Academic level	-0.62**	0.26
Major in economics	0.12	0.19
General/quantitative economics	-0.78**	0.30
Post-graduate education	0.38*	0.20
Management function	0.19	0.20
Profit sector	0.83***	0.21

Corrected R square	0.48	*	Significant at 10% level
Standard error	0.69	**	Significant at 5% level
F	10.1	***	Significant at 1% level

Source: ROA

Table 4b shows the estimation results from the regression equation with respect to the importance of *assertiveness* for proper occupational practice. The variables included in the regression equation together explain only 2% of the variance in the occupational importance of character traits related to assertiveness. The results show that occupying a management position is the only variable which has a significant effect on the occupational importance of assertiveness. As was expected, assertiveness is more important for those working in a management function than it is for exercising non-management functions. The results also show that, as expected, assertiveness is less important in the private business sector, although the effect of this job characteristic is not significant. The effects of having a university-level job, working within one's own educational domain, and graduating in general/quantitative economic, although not significant, do not have the expected signs.

Table 4b: *Results of the regression analysis for the occupational importance of assertiveness*

Variable	Regression coefficient	Standard error
Constant	0.54	0.39
Academic level	0.10	0.34
Major in economics	0.19	0.25
General/quantitative economics	0.52	0.40
Post-graduate education	0.33	0.27
Management function	0.47*	0.27
Profit sector	0.09	0.28

Corrected R square	0.02	*	Significant at 10% level
Standard error	0.91	**	Significant at 5% level
F	1.2	***	Significant at 1% level

Source: ROA

The estimation results from the regression equation with respect to the occupational importance of *knowledge* are displayed in table 4c. The variables included in the regression equation together explain only 15% of the variance in the occupational importance of knowledge. The results show that, of all these variables, only the required field of study has a significant effect on the importance of knowledge in occupational practice. As can be expected, knowledge of economics is far more important in jobs within the economists' own educational domain than it is in more general jobs for which a major in economics is not explicitly required. The results also show that, as expected, knowledge of economics is more important in the private business sector, in university-level jobs, in jobs that combine working and studying within the function, and in management positions, although the effects of these job characteristics are not significant. As far as graduating in general/quantitative economics is concerned, the effect, although not significant, does not have the expected sign.

Table 4c: *Results of the regression analysis for the occupational importance of knowledge*

Variable	Regression coefficient	Standard error
Constant	-0.93**	0.38
Academic level	0.45	0.33
Major in economics	0.56**	0.25
General/quantitative economics	-0.43	0.39
Post-graduate education	0.34	0.26
Management function	0.34	0.26
Profit sector	0.07	0.28

Corrected R square	0.15	* Significant at 10% level
Standard error	0.89	** Significant at 5% level
F	2.7	*** Significant at 1% level

Source: ROA

Table 4d: *Results of the regression analysis for the occupational importance of presentation skills*

Variable	Regression coefficient	Standard error
Constant	0.50	0.41
Academic level	0.14	0.36
Major in economics	-0.36	0.27
General/quantitative economics	-0.17	0.42
Post-graduate education	-0.13	0.28
Management function	0.15	0.28
Profit sector	-0.61**	0.30

Corrected R square	0.01	* Significant at 10% level
Standard error	0.96	** Significant at 5% level
F	1.1	*** Significant at 1% level

Source: ROA

Finally, table 4d shows the estimation results from the regression equation with respect to the importance of *presentation skills* in the occupational practice of economists. The variables

included in this last regression equation together explain only 1% of the variance in the occupational importance of presentation skills. The results show that, of all these variables, only the sector of industry has a significant effect on the importance of presentation skills in occupational practice. As was expected, presentation skills are far less important in the private business sector than in non-profit seeking organisations. The results also show that, as expected, presentation skills are less important in jobs within the economists' own educational domain and for general/quantitative economists, although the effects of these characteristics are not significant. Contrary to expectations, presentation skills are more important in university-level jobs, although the effect is not significant.

Qualifications acquired in education

This section deals with the degree to which RL education in economics provides the graduates with the knowledge, skills and attitudes required in occupational practice. The graduates were asked to indicate whether the course should devote more attention, an equal amount of attention, or less attention to the various qualifications, as compared to the degree of attention that was given to the various qualifications during their RL education. The answers were converted into an interval-scale:

- 'more attention' got the value +1;
- 'equal attention' was recoded with the value 0;
- 'less attention' was given the value -1.

This implies that the average discrepancy score per item may vary from -1 (if all respondents state that the qualification item should get less attention) to +1 (if all respondents state that the qualification item should get more attention). The closer the average discrepancy score is to 0, the better the match between education and occupational requirements. It was found that in general content discrepancies are smaller with respect to attitudes (average item score of 0.25) and knowledge items (average discrepancy score of 0.28) than for skills (0.34).

Finally, the RL-educated economists were asked whether or not they believe that problem-based education had given them a better command of certain qualifications than traditionally educated economists. According to RL economists, PBL is more appropriate for acquiring skills and furthering attitudes than for acquiring knowledge. For the items related to skills, an average of 56% of respondents thought that PBL is an advantage. For attitudinal item the average score was 53%, and for knowledge items 'only' 34%.

It remained to ask whether the discrepancy problems which were found apply to qualifications which are important for proper occupational practice or to less important qualifications, and how this relates to the advantages of PBL. In order to answer this question, table 5 brings together the degree to which graduates have acquired qualifications in education (operationalized by the degree of attention given) and the advantages of PBL with the degree to which these qualifications are required in occupational practice (operationalized by their importance for occupational practice). In this table the qualification items have been classified on the basis of three criteria:

1. The percentage of respondents who stated that the item is fairly or very important for their occupational practice. An importance-score of 85% divides the 18 qualification items into 9 relatively more important items (the left side of the table), and 9 relatively less important items (the right side of the table);

2. The average discrepancy score, described earlier. A score of 0.30 divides the 18 qualification items into 9 items to which more or less enough attention has been paid (the upper side of the table), and 9 items which should receive more attention (the lower side of the table);
3. The percentage of respondents who consider PBL as an advantage. With respect to 10 of the 18 qualification items, PBL is seen as an advantage by over 50% of the respondents (these items are marked with an asterisk). For the remaining eight items, less than 50% of the respondents see PBL as an advantage over traditional forms of education.

On the basis of the first two criteria the 18 qualification items can be classified into the following four groups:

- 5 items which are relatively important for occupational practice, and to which the respondent's course paid more or less enough attention;
- 4 items which are relatively important for occupational practice, and which should receive more attention;
- 4 items which are relatively unimportant for occupational practice, and to which more or less enough attention was given in the course;
- 5 items which should receive more attention, although they are relatively unimportant for occupational practice.

Table 5: *Comparison of acquired and required qualifications*

More important in practice [1]	**Less important in practice** [2]
Enough attention given in education [3]	
writing skills*	general knowl. economic theory
self-reliance/taking initiative*	knowledge of informatics
exactitude/accuracy/precision	transferring knowledge*
adaptability/flexibility/improvising*	specialist economic knowledge
handling stress/dealing uncertainty	
More attention needed in education [4]	
oral presentation*	knowl. methods for economics
planning/coordinating/organizing*	application of theory*
analytical-/research skills*	negotiating skills*
social communicative skills*	command of foreign languages
management skills	

Source: ROA

1) over 85% of the respondents find the item to be fairly important or very important for occupational practice
2) 85% or less of the respondents find the item to be fairly important or very important for occupational practice
3) average discrepancy score is lower than 0.30
4) average discrepancy score is 0.30 or more
*) over 50% of the respondents consider PBL as an advantage

From the overview in table 5 the following conclusions may be drawn. In general, content discrepancies are greater with respect to (certain) skills than knowledge and attitudes:

- there are hardly any serious problems with respect to knowledge, either because enough attention was paid in the course to the particular kind of knowledge (this is the case with general knowledge about economic theory, specialist economic knowledge, and knowledge of informatics) or because certain aspects of knowledge are less important in occupational practice (this applies to knowledge of the methods in economics, and the application of theory);
- there are few problems with attitudes (self-reliance/taking the initiative, exactitude/accuracy/precision, adaptability/flexibility/improvising, and handling stress/dealing with uncertainty), because they get enough attention in RL education.

It is especially with respect to the qualifications which are more important for occupational practice that PBL was seen as more effective than traditional forms of education. PBL scores less favourably on the occupationally less important qualifications. This indicates that PBL provides students with the qualifications which they need in their professional careers. In particular, the RL course succeeds rather well in improving occupationally important writing skills and attitudes, which are contained in the left upper corner of table 5. However, the graduates also indicate that, despite the advantages they have due to PBL, even more attention should be paid to some of the occupationally relevant qualifications, in order to further the proper practice of their occupation. This is the case with oral presentation, social communicative skills, analytical-/research skills, and planning-/coordinating-/organizing skills. Because of their relevance for occupational practice, any attempts to revise the courses should focus on these skills, since the other aspects that should, according to the graduates, receive more attention are also seen as less important in practice. The latter aspects are presented in the bottom right-hand corner of table 5.

Conclusions

This survey of the first generation of RL-educated economists showed that almost all have found paid work. Although there is hardly any under-utilization of their potential capacities, there is a great deal of competition with other academics (one out of two exercises a function for which a study in economics is not explicitly required).

By looking at the qualifications required in occupational practice, we have found that:

- communication skills are most important in the private business sector, in jobs held by business economists, in jobs below the university level, and in jobs that do not combine working and studying within the function;
- assertiveness is most important in management positions;
- knowledge of economics is most important in jobs within the economists' own educational domain; and
- presentation skills are most important in non-profit seeking organisations.

Before summarising the research findings with respect to content discrepancies, it should be noted that only the graduates' opinions about these discrepancies have been investigated. These do not necessarily coincide with employers' opinions. Furthermore, the research findings only apply to matching problems which occur in the early stages of economists' careers. These are not necessarily the same as the problems in later stages of their careers. And finally, the research findings apply only to the opinions of economists trained under the PBL system.

There are content discrepancies between the qualifications required in occupational practice and the qualifications acquired in RL education, and these discrepancy problems are generally greater with respect to (certain) skills than with respect to knowledge and attitudes. The research findings also showed that problem-based learning provides students particularly with the qualifications which are important in occupational practice. Nevertheless, despite the clear advantage of PBL, still more attention should be given to the following occupationally important skills: oral presentation, planning / coordinating / organizing skills, analytical / research skills, and social communicative skills.

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