

European Journal of Education, Vol. 35, No. 2, 2000

Higher Education and Graduate Employment in the Netherlands

JIM ALLEN, PETRA BOEZEROOY, EGBERT DE WEERT & ROLF VAN DER VELDEN

Structure and Development of Higher Education

Higher education in the Netherlands comprises the university sector and the sector for higher vocational education (*Hoger Beroepsopleiding* or HBO). They developed under very different historical circumstances and are based on different rationales.

There are 13 universities, nine of which provide teaching and conduct research in a wide range of disciplines in arts and sciences. Three (technical) universities offer courses mainly in science and engineering subjects and one is specialised in agricultural sciences.

The HBO sector was established in the late 1960s when colleges for higher vocational training were upgraded. Major reforms in this sector resulted in the amalgamation of more than 400 smaller institutions oriented towards specific professional fields into large institutions providing a wide range of vocationally-oriented courses, with a standard period of study of four years. Today, there are some 65 HBO institutions providing theoretical and practical training with a clear vocational orientation. They have an important societal task of transferring and developing knowledge for the benefit of the professions in both the industrial and service sectors.

In addition, other institutions are considered as higher education institutions. First, there are a limited number with 'university status', such as the institutes of theology and the university of business administration. Second, there are a number of private institutions which offer courses in various professional fields such as economics, management, and engineering. Often these are structured as distance learning courses and recently more institutions have been seeking recognition from the Ministry of Education to issue diplomas at HBO-level. Third, the Open University provides both university and HBO degrees through distance learning with a number of support centres around the country.

The first university degree is close to the master degree. It is obtained after a standard four-year course. Exceptions are several science and engineering courses mainly at the three technical universities and increasingly at the general universities which, as from 1995, last for five years. Medicine, pharmacy, and veterinary medicine studies last for six years.

The HBOs award the first degree after four years. In the past, the length of study varied from three to six years, depending on the field. Since 1986, it has

been harmonised for all subjects, with the exception of some shorter sub(degree) programmes which will be left aside here.

HBOs do not award a master degree, but students can qualify for this degree at a university, at its discretion. An alternative route to the master degree has been developed by HBO institutions which offer, as part of their post-initial training programmes in association with former British polytechnics, one- or two-year programmes leading to a British master degree. Since 1996, this route has been formally recognised as professional master degrees.

At the level of post-initial higher education, the provision by both universities and HBOs has developed considerably. Except for some specialist and professional areas (medicine, architecture), they do not lead to recognised degrees and have a strong market orientation.

The number of new entrants at Dutch universities almost doubled between 1975 and the early 1990s and thereafter levelled off to about 30,000 in 1995. New enrolments in the HBO sector rose from 40,000 to almost 70,000. Over time, the proportion of women new entrant students reached almost 50%. The participation rate of 20–24-year-olds in HE is 43%, of whom 17% are in universities.

Employment of Graduates

Table I shows the employment situation of 1994-95 HBO and university graduates approximately one- and- a- half years after graduation. A large majority — some 80% for HBO and 87% for university — were in paid employment at the time of the data collection. For working university graduates, we distinguish between a job as an intern or PhD student and other kinds of paid employment. About one in eight (13%) falls into this category. A relatively large proportion of HBO graduates (12%), but only a tiny proportion of university graduates (2%) were enrolled in further education at the time of the survey. The percentage of graduates who said that they were unemployed was similar at both levels: 6% for HBO graduates and 5% for university graduates. About 2% of HBO graduates

TABLE I. Situation of Graduates about One-and-a-Half Years after Graduation in the Netherlands, by Level and Field of Education (percentage)

	agric	educ	techn	econ	health	social	art(s)	law	science	Total
<i>HBO</i>										
Paid employment	78	80	82	81	86	80	73	–	–	80
Study	78	12	12	15	9	10	11	–	–	12
Unemployed	8	6	5	3	5	8	10	–	–	6
Other	2	2	1	1	1	2	5	–	–	2
<i>University</i>										
PhD student/intern	22	–	11	2	68	6	8	1	34	13
Other paid employment	<u>59</u>	<u>–</u>	<u>82</u>	<u>93</u>	<u>21</u>	<u>76</u>	<u>66</u>	<u>87</u>	<u>52</u>	<u>74</u>
Study	1	–	1	0	3	1	3	3	3	2
Unemployed	9	–	3	2	5	8	9	5	7	5
Other	8	–	2	3	4	9	14	4	4	6

Sources: HBO: ROA (1997) *Schoolverlaters tussen onderwijs en arbeidsmarkt* 1996; University: Berkhout & Webbink (1997) *Goede studies, de beste banen*.

and 6% of university graduates were in some other type of situation, for example in voluntary work or work in the household.

Figures are also presented separately for nine main fields of study, two of which (law and science) are not represented at HBO level, and one (education) is not represented at university level. Only fairly small differences between categories exist at HBO level. HBO graduates in the field of health studies are more likely than other graduates to have a paid job, and those in economics at that level are more often enrolled in further education and — perhaps partly as a result of this — less likely to be unemployed. A relatively high proportion of graduates of HBO art(s) education is unemployed, and a correspondingly low proportion is employed.

At the university level, art(s) education — which is much more general than at HBO level — is also characterized by a relatively high level of unemployment and a low rate of participation in paid work. Even more striking is the high number of graduates in this field (14%) who neither participate in the labour market (either in paid employment or in unemployment) nor in further education. A similar, though less pronounced, pattern can be seen for university graduates of agricultural and social education. By contrast, almost all university graduates in technical studies and economics participate in the labour market, mostly in paid employment.

The match between graduates' qualifications and work can be defined as, first, the extent to which they have found work for which their level of education was required. Secondly, the graduates themselves might state how well the content of their work matches their studies. Finally, we can take into account the extent to which their qualification or a closely related qualification was required.

- About three quarters (76%) of recent HBO graduates work in jobs for which at least their level of education was required by the employer. This only applies to about two-thirds (65%) of university graduates.
- As regards the subjective assessment of the match between qualification and job, it seems that art(s) graduates at both levels have the lowest assessment. At HBO level, graduates of education studies are also less positive in this regard, while those of technical and especially economic studies show a high assessment of the match. Among university graduates, a minority of graduates of social and technical studies finds the match good in all respects. A large majority of graduates in the field of health education has no reservations about the match.
- Finally, 81% of HBO graduates work in a job that requires either their own or a closely related qualification. Since HBO is specifically intended to provide vocational training, this high percentage is not surprising. In all the separate fields of education a large majority works in a job requiring qualifications which are closely related to their own. The percentage is highest in health studies, and relatively low in agriculture, economics and art(s). Respective data for university graduates are not available.

Several research findings in the last decade on the relationships between higher education and employment have stressed the growing importance of *general knowledge, attitudes and social skills of graduates*. The value attached to these differs according to discipline, type of job and professional area and, generally, apply more to university than to HBO graduates.

Regarding university graduates, several studies at the institutional and faculty level show that the content of field knowledge is generally not a problem. Criticisms mostly concern graduates' lack of well-developed personal characteristics and skills. Both graduates from various disciplines and employers stressed the importance of these types of skills. However, they are of a various nature: oral and written communication, motivation and interpersonal aspects and the ability to think and act in a way which fits into the particular situation of the job.

It is generally accepted that specific subject field is not a decisive factor. Other qualities that are of overriding importance are the ability to work in a team, being sensitive to commercial issues, the potential of further personal development on the job, etc. Also, the capacity to learn on the job through additional training and experiences is important. These qualities are usually considered in combination, stressing the coherent personality traits.

These qualities apply to many types of graduates. Even among the typical research functions more value is attached to these broader personal skills. Here, familiarity with project management and the ability to work in an interdisciplinary team are often mentioned (Hulshof *et al.*, 1996). The 1997 survey of HBO graduates (HBO-Monitor, 1997) suggests that *work attitudes* are the most important in the job. The aspects most often cited are the 'capacity to adapt' and 'flexibility' (97%), 'self-reliance, initiative and creativity' (97%), and 'to establish and maintain contacts with others' (96%). As regards *knowledge*, 'applying professional knowledge', general domain knowledge (91%), the ability to apply specific methods and techniques (86%) and recent developments in the professional field (87%) are very often mentioned.

Among *social skills*, oral presentation and fluency (92%), the ability to plan, co-ordinate, and organise (87%), as well as written communication (84%) are considered important qualities on the job.

Finally, instrumental skills such as quantitative skills, foreign languages, research and information skills are quoted. It should be added, though, that the importance of skills in the field of information and communication technology has increased from 59% in 1991 to 78% in 1995.

Another indication of the value of general knowledge is the extent to which graduates are occupying specific occupations or are spread over a wide range of occupational areas. An indicator that is often used is the Gini-Hirschman coefficient which measures the extent to which graduates are spread over various occupational areas and thus indicates their flexibility. The value of this coefficient is between 0 and 1, where 0 indicates that a subject is a preparation for one specific occupation only, and 1 indicates an equal occupational dispersal. Table II presents the dispersal coefficients of some educational sectors in universities and HBOs for three years. It shows that the dispersion of subjects over occupational areas has increased over the years, with the exception of engineering. The increase for humanities and the social and arts sector is remarkable. The coefficients for individual subjects within these broad sectors differ considerably. For example, some technical subjects such as information sciences have a low index (0.64), whereas agricultural and environmental engineers have the highest (95%) (see also ROA, 1995)

The findings can be interpreted in various ways. One interpretation is that this pattern can be explained by referring to the labour market position of different disciplines. Graduates in disciplines such as engineering or medicine easily find employment in their branch, whereas other graduates, for example in humanities

TABLE II. Dispersion of Fields of Studies over Occupations of Graduates in the Netherlands 1985, 1990, 1993 (Gini-Hirschman index)

	1985	1990	1993
<i>HBO</i>			
Education	0.78	0.79	0.80
Engineering	0.90	0.90	0.89
Health	0.76	0.79	0.81
Economics	0.84	0.89	0.89
Social/arts	0.79	0.88	0.90
<i>Universities</i>			
Humanities	0.41	0.68	0.77
Sciences/engineering	0.84	0.82	0.80
Medicine	0.36	0.38	0.48
Economics/law	0.82	0.73	0.77
Social sciences	0.73	0.88	0.89

Source: Based on AKT/EBBV; See Webbink & Paape (1997).

and social sciences, are more pressed to seek alternative outlets and are successful in this. Another interpretation is that graduates from different disciplines seem to be very flexible. Hence, the link between the field of study and area of employment is becoming less direct than is often assumed.

Identification of Early Career Trajectories

A majority (62%) of graduates at both levels already began their *job search* prior to their graduation (most data here are based on *HBO-Monitor 1997* and on Berkhout and Webbink, 1997). Slightly more university graduates than HBO graduates already begin to look for a job three months or more prior to graduation (46% compared to 39%). However, more university than HBO graduates begin their active job search (17% compared to 9%) relatively late (three months or more after graduation).

For HBO graduates, the *channel* most often used was answering an advertisement. About a quarter found their job this way. Many also found work through a temping bureau or by sending an open application to a firm. A period of practical work experience during the course led to a job after graduation for 11% of graduates. Friends and acquaintances are also instrumental. The school and the unemployment office were only used by a small percentage of HBO graduates, and practically no graduates got work through attending a firm's open day.

Answering an advertisement was also the channel most often cited by university graduates. They also sent out an open application letter and/or sought work through a temping office. Unlike HBO graduates, a relatively large percentage looked for work through the employment office. Information from one's family was widely used, in particular by graduates in agriculture, social and art(s) studies and law. Many contacted an employer. The university's alumni association and training activities by firms were only used by a small percentage of graduates.

Data for early career trajectory are available notably for HBO graduates. In the first month following their graduation about 60% had already found work. This

percentage increases up to slightly more than 80% after 15 months. The majority of the graduates who do not obtain work immediately are either unemployed or are enrolled in a further course of education. About 6% are in another situation, for example doing voluntary work or taking care of the household. This latter percentage drops to only 3% 15 months after graduation. However, the main source of increase in the percentage in paid employment comes from a decrease over the 15 months in the percentage of graduates who are unemployed. The percentage of graduates who are still studying drops somewhat from the first to the second month after graduation, and again more substantially after about a year. This second drop, which concerns graduates who have completed an additional one-year course, leads to a temporary increase in unemployment, which then continues to diminish in the following months.

Impact of Higher Education on Graduate Employment and Work

Table III shows the results of an analysis to ascertain the extent to which a number of labour market indicators for HBO graduates shows significant variance at higher levels of aggregation in the education system, and the extent to which any such variance can be ascribed to context characteristics in the education system. Three aggregation levels are distinguished above the graduate level. The highest is the college level which consists of 50 different HBO colleges. Within this level is the department level, which consists of the various fields of education within each of these 50 colleges. A total of 97 college/department combinations are distinguished. Within this level in turn is the year level. 'Year' refers to year of graduation: data on 1991, 1992 and 1993 graduates were used, resulting in a total of 223 year/department/college combinations. The total of 6,275 graduates are in turn nested in this level.

The method used for the analysis is multi-level (hierarchical) modelling, involving estimation of regression coefficients in which the dependent variable can vary randomly at both each of the higher aggregation levels and the individual level. Predictor variables can also be included at each level to account for these variance components.

Four outcome indicators (dependent variables) are distinguished. The first, 'quick job entry', is a dummy variable, indicating whether a graduate was unemployed for three months or less during the period since graduation. The second indicator, 'job level', is also a dummy, this time indicating whether a graduate has obtained a job for which HBO-level studies at least were required. The third and fourth indicators, 'hourly wage' and 'monthly wage', represent gross wages and differ in that the latter is in part determined by the number of hours worked. Since the first two outcome indicators are dummies, a multi-level logistic regression model was used for these. For the income variables, multi-level linear regression was used.

At the graduate level, the following predictor variables were included: gender, age, prior education (distinguishing general senior secondary, pre-university, vocational senior secondary, HBO and other forms of education), the number of months taken to complete studies, dummies representing relevant work and board experience, and the region where one has found work. At the year level, the only predictor variable is the year itself, with the group graduating in 1991 as the reference category. At the department level, the seven fields of study are used as

TABLE III. Results of 4-Level-Analyses for Performance Indicators for HBO Graduates in the Netherlands

	Quick job entry		Job level		Hourly wage		Monthly wage	
	B	S.E.	B	S.E.	B	S.E.	B	S.E.
GRAND MEAN	5.68		3.08		1.80		8.53	
<i>Graduate level</i>								
<i>Gender</i>								
- female (reference)	0.00		0.00		0.00		0.00	
- male	0.10	(0.10)	0.03	(0.11)	0.13	(0.03)**	0.39	(0.17)*
Age	-0.11	(0.02)**	0.02	(0.02)	0.03	(0.01)**	0.34	(0.04)**
<i>Prior Education</i>								
- gen. Senior sec. (reference)	0.00		0.00		0.00		0.00	
- pre-university	-0.01	(0.10)	-0.02	(0.10)	0.01	(0.02)	0.03	(0.15)
- voc. Senior sec.	0.23	(0.12)	-0.15	(0.12)	0.01	(0.03)	-0.15	(0.19)
- HBO	-0.17	(0.35)	0.41	(0.58)	-0.19	(0.12)	-0.66	(0.74)
- other	0.13	(0.26)	0.02	(0.29)	-0.04	(0.07)	-0.13	(0.46)
Duration of Study	-0.16	(0.07)*	-0.28	(0.07)**	-0.02	(0.02)	-0.20	(0.11)
Work Experience	0.21	(0.09)*	0.14	(0.09)	0.05	(0.02)*	0.16	(0.14)
Board Experience	0.08	(0.09)	0.16	(0.09)	0.02	(0.02)	0.15	(0.14)
<i>Work Region</i>								
- west (reference)	n.a.		0.00		0.00		0.00	
- north			-0.15	(0.18)	-0.17	(0.04)**	-0.37	(0.26)
- east			0.09	(0.12)	-0.12	(0.03)**	-0.36	(0.17)*
- south			0.08	(0.12)	-0.08	(0.03)**	-0.31	(0.16)
- foreign			0.37	(0.34)	0.67	(0.07)**	4.24	(0.48)**
<i>Year level</i>								
<i>Year of graduation</i>								
- 1991 (reference)	0.00		0.00		0.00		0.00	
- 1992	-0.29	(0.12)*	-0.13	(0.11)	0.12	(0.03)	1.08	(0.17)**
- 1993	-0.35	(0.11)*	-0.20	(0.10)	0.05	(0.03)	0.97	(0.17)**
<i>Department level</i>								
<i>Department</i>								
- education (reference)	0.00		0.00		0.00		0.00	
- engineering	0.15	(0.21)	-0.44	(0.20)*	0.55	(0.04)**	1.96	(0.26)**
- economics	-0.07	(0.19)	-1.09	(0.17)**	0.52	(0.04)**	1.76	(0.22)**
- health	1.26	(0.22)**	-1.54	(0.15)**	0.22	(0.03)**	1.37	(0.20)**
- social	-0.59	(0.21)*	-1.47	(0.19)**	0.67	(0.05)	2.32	(0.28)**
- art(s)	-1.12	(0.29)*	-0.96	(0.35)	-0.77	(0.09)**	3.85	(0.54)**
<i>College level</i>								
<i>Study Region</i>								
- West (reference)	0.00		n.a.		n.a.		n.a.	
- North	-0.99	(0.20)**						
- East	-0.51	(0.16)**						
- South	-0.57	(0.16)**						
<i>Residual variance components:</i>								
- Graduate level	n.a.		n.a.		15.240		0.360	
- Year level	0.059		0.000		0.126		0.004	
- Department level	0.144		0.055		0.000		0.000	
- College level	0.000		0.000		0.000		0.003	

Source: Bosker et al. (1997) *Differential effects of colleges on the labour market success of their graduates*

Notes:

1. n.a. = not applicable
2. Estimates for quick job entry and job level are logistic regression estimates
3. * = significant at 5% level; ** = significant at 1% level.

predictors, with education studies serving as the reference category. Finally, at the college level, the region of graduation was included as predictor.

Table III shows the estimated coefficients at the four levels and the residual variance components (i.e. the unexplained variance remaining after the predictor variables have been taken into account).

Looking at estimates at the graduate level, gender only significantly affects the wage variables. As to the chance of needing three months or less to find work and that of finding work at one's own level, it seems that women do not fare much worse than men. Age is a disadvantage for quick entry but an advantage in wage terms. It does not significantly influence the chance of finding work at HBO level. Prior education plays no significant role in any of the models. Graduates who have taken longer to complete their course are somewhat less likely to find a job quickly and to have found a job at their own level, but do not earn significantly less. Work experience facilitates a quick entry to some extent and improves hourly — though not monthly — wages. Board experience makes no difference in any of the models. The region is obviously not applicable in the estimate involving quick job entry, since not all graduates included need necessarily be employed at the time of the data collection. There are no significant regional differences in the chances of finding work at at least HBO level, but great effects on monthly wages are apparent. Graduates working in any other region in the Netherlands earn less in hourly terms than their counterparts working in the West of the country. By contrast, graduates working abroad can expect to earn substantially more. It seems that graduates working in the East and particularly in the North and South compensate somewhat for their low hourly wages by working longer hours, since the effects of these regions on monthly wages is less strong and in the case of the North and the South is no longer significant.

At the year level, it seems that those who graduated in 1992 and 1993 were somewhat less likely to have found work quickly than those who graduated in 1991. This is due to the harsh recession which hit the Netherlands in the early 1990s. This has not however affected the chances of finding work at HBO level or hourly wages. In fact, the estimates indicate that those who graduated in 1992 and 1993 could expect to earn considerably more than those who graduated in 1991. However, this is probably due to the fact that wages have not been corrected for inflation.

At the department level, a rather complex pattern emerges. Graduates in health studies were much more likely than those in education studies (the reference category) to enter employment rapidly. By contrast, graduates in social sciences and arts studies are somewhat less likely to find work quickly.

Although health graduates find work quickly in general, they are less likely than education studies graduates to find a job at their level. The same applies to all the fields with the exception of art(s) studies. Graduates from technical, economic and health studies expect to earn more in terms of hourly wages than education studies graduates. Art(s) graduates earn less in terms of hourly wages, but more in terms of monthly wages.

Finally, the effect of the region of graduation on the chance of quick job entry has been estimated. Compared to graduates in the West of the country, graduates in the North, East and South have much less chance of finding work quickly.

At the bottom of Table III we see the residual variance components at the four levels for the four outcome indicators. Because the outcome variables 'quick job

entry' and 'job level' are dichotomous dummy variables, no variance can be calculated at the graduate level.

The 'quick job entry' indicator shows considerable residual variance at the year level and at the department level. There is no residual variance at the college level. This suggests that, to the extent that colleges differ from each other, these differences are either related to the region in which the college is located, or is specific to individual departments within colleges rather than to the colleges as a whole. Nor can these differences be attributed to specific fields of study. The residual variance at the year level suggests that many departments and/or colleges differ from year to year in their performance on this indicator.

The 'job level' indicator only shows residual variance at the department level, which indicates that individual departments within colleges around the country differ from each other in the extent to which their graduates find work at at least HBO level.

At the graduate level, considerable wage variance (both hourly and monthly) still remains unexplained by the predictor variables in the model. This suggests that graduates who have similar individual characteristics, educational career and work in the same region often differ from each other in the wages they earn. A very small proportion of total variance in hourly wages occurs at the year level, but practically none of the variance in either wage indicator occurs at the department or college level. To the extent that colleges and departments differ from each other or change over time in the wages earned by their graduates, almost all this variance can be accounted for by taking the year of graduation and field of study into account.

REFERENCES

- BERKHOUT, P.H.G. & WEBBINK, H.D. (1997) *Goede Studies, De Beste Banen* (Amsterdam, Stichting voor Economisch Onderzoek der Universiteit van Amsterdam).
- BOSKER, R.J., VAN DER VELDEN, R.K.W. & VAN DE LOO, P.J.E. (1997) *Differential Effects of Colleges on the Labour Market Success of their Graduates. Research Memorandum* (Maastricht, Researchcentrum voor Onderwijs en Arbeidsmarkt).
- HBO-RAAD (1997) *De Arbeidsmarktpositie van Afgestudeerden van het Hoger Beroepsonderwijs, HBO-Monitor 1996: Statistisch Supplement* (Den Haag, HBO-Raad).
- HULSHOF, H., VERRIJT, A.H.M. & KRUIJTHOFF, A. (1997) *Promoveren en de arbeidsmarkt: ervaringen van de 'lost generation'* (Den Haag, Ministerie van OC&W).
- ROA (1995) *De arbeidsmarkt naar opleiding en beroep tot 2000* (Maastricht, Research Center for Labour Market Research).
- ROA (1997) *Schoolverlaters tussen onderwijs en arbeidsmarkt* (Maastricht, Research Center for Labour Market Research).
- WEBBINK, D. & PAAPE, A. (1997) *De dynamische relatie tussen hoger onderwijs en arbeidsmarkt* (Den Haag, Ministry of OC&W).