

Assessment report
Limited Programme Assessment

Master Spatial, Transport and Environmental Economics

Vrije Universiteit Amsterdam

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1. Executive summary

In this executive summary, the panel presents the main considerations which have led to the assessment of the quality of the programme Master Spatial, Transport and Environmental Economics of Vrije Universiteit Amsterdam, which has been assessed according to the NVAO Assessment Framework.

The panel observes programme management has taken up the recommendations made in the previous assessment in 2011. Programme management, among others, now requires students to select at least two out of three core courses that are offered (one for each specialisation), interconnected the research project and the master thesis more closely and started offering programme-specific tutorials on microeconomics.

The panel is positive about the Faculty's objectives to educate students not only in academic and professional knowledge and skills but also to train them to become responsibly thinking and acting professionals or academics. The latter is a distinct and valuable characteristic of the Vrije Universiteit economics programmes.

The panel supports the plan of programme management to change the name of the programme into a name, more telling for prospective students.

The panel is positive about the broadness and the depth of the programme objectives, to educate students to understand and analyse the relationships between a wide variety of spatial economics phenomena and to address all three spatial economics sub-disciplines, being regional and urban economics, transport economics and environmental economics.

The programme intended learning outcomes meet the programme objectives, exhibiting, among others, disciplinary knowledge of theory and methods of spatial economics in a broad sense, academic level of thinking, research skills and professional problem-solving skills. The learning outcomes are consistent with the domain-specific reference framework, which has been drafted by this Faculty and the economics programmes of Erasmus University Rotterdam and Wageningen University. In addition, they correspond to master level requirements.

Programme management conducted a sound comparison to other master programmes in the Netherlands and abroad in this field. The distinctive feature of this programme, addressing all three sub-disciplines of spatial economics, is evident from this comparison.

As the number of incoming students has been and seems to remain somewhat limited, the panel recommends to try and raise this number.

The panel considers the admission requirements and processes satisfactory, but recommends to further develop the deficiency programme and make it more suitable for international students.

The curriculum reflects all the programme intended learning outcomes adequately and evenly. The panel advises to raise the number of specialisation courses for the environmental economics sub-discipline. Although the curriculum is adequate content-wise, the panel recommends to consider redesigning it to improve the coherence, taking the opportunity to reflect on the underlying concept.

The panel is satisfied about the educational principles and the study methods of the programme, as these are conducive to the students' learning processes. The number of contact hours is adequate. The policies regarding the introduction and deployment of new and innovative study methods are satisfactory.

Programme management monitors the study pace of the students adequately. The student success rates may be considered to be satisfactory, although the completion rate of 38 % in one year and the average study duration of 17 months could be more favourable, given the small scale of the programme.

The panel approves of the lecturers deployment and evaluation procedures, as they ensure qualified lecturers to teach in the programme. The panel regards the lecturers to be very good researchers, working in the forefront of their field of expertise, and approves of the educational capabilities of the lecturers. The panel recommends programme management to intensify collaboration among lecturers, in order to strengthen the shared concept and the coherence of the programme.

The examination and assessment rules and regulations of the programme are adequate. They conform to the Vrije Universiteit and Faculty of Economics and Business Administration policy statements and include, among others, measures to assure the examinations' validity, the reliability of assessments and the competencies and expertise of examiners.

The examination methods in the programme are in line with the course contents to be assessed. The diversity of examination methods in courses and across courses allow for the assessment of knowledge and skills, relevant to the programme.

The panel observes programme management having drafted a comprehensive thesis manual in which the timeline of the thesis process has been explained clearly. The supervision of the thesis is well organised. The thesis assessment process is a reliable process, as at least two examiners are involved and sound assessment forms are used. The panel welcomes the transition process from assessment forms to scoring models or rubrics, as these may raise the quality of the assessments further.

The panel ascertained the Examination Board to have the responsibilities and to work along the lines, as intended by Dutch applicable law. The Board monitors the examination and assessment processes and inspects examinations. The panel recommends to step up these inspections and to include theses in the quality assurance checks, as the Examination Board plans to do.

The panel finds the course examinations of the courses to be of adequate quality and to be challenging. The panel studied four theses of students, which ranged from satisfactory to very good. Not one of the theses is considered by the panel to be unsatisfactory. The panel agrees with the grades of the theses, as given by the examiners. The panel is positive about the positions the graduates have been able to obtain.

The panel assesses the programme Master Spatial, Transport and Environmental Economics of Vrije Universiteit Amsterdam to be satisfactory and advises NVAO to grant to this programme re-accreditation.

Rotterdam, 6 March 2017

Panel chair
Prof. dr. T.J. Wansbeek

Secretary
drs. W. Vercouteren RC

2. Assessment process

Certiked VBI received a request to conduct a limited programme assessment for the re-accreditation of the academic degree programme Master Spatial, Transport and Environmental Economics. This request was submitted by Vrije Universiteit Amsterdam.

Certiked requested the approval by NVAO of the proposed panel of experts to conduct this assessment. NVAO have given their approval. The panel composition was as follows (for more detailed information please refer to Annex 4: Assessment panel composition):

- Prof. dr. T.J. Wansbeek, Emeritus Professor of Statistics and Econometrics, University of Groningen (panel chair);
- Prof. dr. J. Hartog, Emeritus Professor of Microeconomics with visiting scholar position, University of Amsterdam (panel member);
- Prof. dr. R. Kabir, Professor and Chair of Corporate Finance and Risk Management, University of Twente (panel member);
- S.M. van den Hoek, student Bachelor programme Tax Economics, University of Amsterdam (student member).

On behalf of Certiked, drs. W. Vercoeteren RC was responsible for the process coordination and for drafting the panel's report. All panel members and the secretary signed a statement of independence and confidentiality.

The panel conducted this assessment on the basis of the NVAO Assessment Framework of 19 December 2014 (Staatscourant nr. 36791). Regarding the selection of the theses, the panel proceeded in line with the NVAO Guidelines for the assessment of final projects during external assessments of 18 February 2015. On 19 September 2016, NVAO determined the number of theses to be studied by the panel in this particular case.

The following procedure was adopted. The panel members of the panel studied the documents presented beforehand by programme management, including a number of theses (please refer to Annex 2 and 3: Documents reviewed and Theses reviewed).

Before the date of the site visit, the panel chair and the panel secretary met to discuss the assessment procedures. On 9, 10 and 17 November 2016, the panel had a meeting to discuss the preliminary findings concerning the quality of the programme. Beforehand, the panel members had sent a number of questions to be put to the programme representatives during the site visit.

During the meeting on 9, 10 and 17 November 2016, the findings of the panel members, including those concerning the theses, were discussed. On the basis of the input of the panel, the secretary summarised the questions, which served as a starting point for the discussions with the programme representatives during the site visit.

On 10, 11 and 18 November 2016, the panel conducted the site visit on the Vrije Universiteit Amsterdam campus. The site visit was conducted in accordance with the schedule drawn up beforehand (please refer to Annex 1: Site visit schedule). Prior to the site visit, programme management communicated the open office hours to the students in the programme and the staff. No one called on the panel.

A draft version of this report was finalised by the secretary, having taken into account the information presented as well as the findings and considerations of the panel. The panel members studied the draft report and made a number of changes. Thereupon, the secretary drew up the final report. This report was presented to programme management to be corrected for factual inaccuracies. After having been corrected for these factual inaccuracies, the report was sent to the institution's Board to accompany their request for re-accreditation.

3. Overview of the programme

3.1 Basic information about the programme

Administrative information about the programme:

Name programme in CROHO: Master Spatial, Transport and Environmental Economics
 Orientation, level programme: Academic Master
 Grade: MSc
 Number of credits: 60.0 EC
 Specialisations: N.A.
 Location: Amsterdam
 Mode of study: Full-time (English-taught programme, taking 1 year)
 Registration in CROHO: 60444

Administrative information about the institution:

Name of institution: Vrije Universiteit Amsterdam
 Status of institution: Government-funded university
 Institution's quality assurance: Approved

Quantitative data about the programme

Percentage of students who completed the programme in two years (n+1)

Cohort	2011	2012	2013
Percentage of students	81 %	74 %	79 %

Lecturers' qualifications

Qualification	MSc	PhD	BKO*
Percentage of lecturers	100 %	100 %	76 %

*BKO means having obtained Dutch University Teaching Qualification.

Student-to-staff ratio

The student-to-staff ratio is 24 : 1 (study year 2015 – 2016)

Contact hours

In periods 1, 2 and 4, the contact hours are 12 hours per week. In periods 3, 5 and 6, students are for about 1.5 hours per week supervised individually, while preparing and completing the research project and the master thesis.

3.2 Main facts about the institution

The degree programme Master Spatial, Transport and Environmental Economics is a programme of the Faculty of Economics and Business Administration of Vrije Universiteit Amsterdam.

Vrije Universiteit Amsterdam (VU) was founded in 1880. According to the website, the university aspires to be an open organisation, strongly linked to people and society. For the University, what matters is not just the acquisition of a greater depth of knowledge, but also the pursuit of a wider scope. VU expects students, researchers, PhD candidates and employees to look beyond their own interests and their own field.

The aim of Vrije Universiteit Amsterdam is to offer academic research and education at a high level of ambition, and to encourage free and open ideas and communication. In its own words, VU stands for universal university values such as academic freedom and independence. The basic philosophy of the university is expressed in three core values: responsibility, openness and personal engagement.

The Faculties of Vrije Universiteit Amsterdam are the Faculties of Dentistry, Earth and Life Sciences, Economics and Business Administration, Behavioural and Movement Sciences, Humanities, Law, Medicine, Sciences, Social Sciences and Theology. Nearly 25,000 students are enrolled in the programmes of the university. About 10,000 staff is employed by the university and by the affiliated VU Medical Center.

The Faculty of Economics and Business Administration offers four bachelor programmes, seven master programmes and 17 postgraduate programmes. Approximately 4,000 bachelor and master students and about 1,700 postgraduate students study at the Faculty and over 500 academic and non-academic staff are employed by the Faculty. The Faculty of Economics and Business Administration is the largest faculty of Vrije Universiteit Amsterdam.

In 2012, the Faculty of Economics and Business Administration started the process of reorganising all of the bachelor and master programmes, beginning with the bachelor programmes. The objectives of this process were to raise the quality of the programmes. Measures which have been taken, are more strict selection of incoming students, raising the education capabilities of the lecturers, restating the intended learning outcomes of the programmes and redesigning the curricula. In 2014, the Faculty offered these reorganised bachelor programmes for the first time.

At the time of this assessment process, the first two years of the bachelor programmes had been renewed, whereas the third and last year still was traditionally organised. The master programmes had not yet been renewed but will, in the coming years, starting in 2017, follow the bachelor programmes. The panel has taken this process of transition into account, when assessing this and the other programmes of the Faculty.

3.3 Intended learning outcomes

The intended learning outcomes of the programme are as follows.

- Students have an academic level of thinking (logical, reflective, critical, creative, ethical and independent).
- Students have theoretical, methodological and empirical knowledge of the relevant aspects of spatial economics, especially about policy aspects connected to location decisions, urban and regional development, the functioning of the land market and spatial planning policy, the functioning of markets and the associated failures in traffic and transport and the policy implications, and the economics of environmental problems and policy.
- Students have knowledge of and insight into the various relationships between economics, space, transport, environment and policy.
- Students have skills to independently set up, prepare, carry out and report on scientific research and have the ability to adequately analyse, interpret and critically examine their own research results and those of others and to clearly present the results of such analyses verbally as well as on paper.
- Students have insight into the importance of the field of spatial economics in its broad historical, philosophical and social context.
- Students have methodological knowledge required to independently carry out policy-related or other research in the domain of the programme.
- Students have professional skills required to apply this knowledge adequately, efficiently and productively in actual practice. Moreover, they have developed the ability to creatively and systematically handle problems occurring in professional practice, by using the relevant theoretical and methodological knowledge and skills to clarify and solve them.
- Students have insight into the policy aspects and challenges present in the domain of the programme, and knowledge and skills to adequately reflect on them and give appropriate advice from an economic perspective.
- Students have an academic attitude, independence, communicative abilities (verbally and on paper), a collaborative attitude and a critical awareness of the moral and ethical dimensions of scientific knowledge and its application.
- Students have academic skills in accessing new literature, judging its relevance, absorbing and applying it in their daily professional practice.

3.4 Outline of the curriculum

In the table below, the programme curriculum is presented.

Compulsory courses:	Credits
Mathematics and Statistics refresher course	0.0 EC
Advanced Methods for Applied Spatial Economic Research	6.0 EC
Microeconomics for Spatial Policy	6.0 EC
Research Project	6.0 EC
Master Thesis	18.0 EC
Core courses:	
Regional and Urban Economics	6.0 EC
Transport Economics	6.0 EC
Environmental Economics	6.0 EC
Specialisation courses:	
Applied Spatial Economics (Regional and Urban Economics)	6.0 EC
Geographical Information Systems (Regional and Urban Economics)	6.0 EC
Real Estate Management (Regional and Urban Economics)	6.0 EC
Applied Transport Economics (Transport Economics)	6.0 EC
Airline Business (Transport Economics)	6.0 EC
Network Analysis (Transport Economics)	6.0 EC
Economics of Climate Change (Environmental Economics)	6.0 EC
Total credits	60.0 EC

4. Overview of assessments

Standard	Assessment
Standard 1: Intended learning outcomes	Satisfactory
Standard 2: Teaching-learning environment	Satisfactory
Standard 3: Assessment	Satisfactory
Standard 4: Achieved learning outcomes	Satisfactory
Programme	Satisfactory

5. Findings, considerations and assessments per standard

5.1 Standard 1: Intended learning outcomes

The intended learning outcomes of the programme have been concretised with regard to contents, level and orientation; they meet international requirements.

Findings

As the Dean of the Faculty of Economics and Business Administration explained to the panel, the main objectives of the Faculty are not only to train students to become experts in their field, but also to educate students to handle subjects and problems in a responsible way. So, students are not only trained content-wise but also with respect to their attitudes. These objectives are condensed in the values expressed in the Vrije Universiteit's mission statement, namely responsibility, openness and personal engagement. These values have been translated into the main objectives of the programme, which are to train the students as academics, professionals and citizens.

In preparation of this external assessment, the Faculty of Economics and Business Administration of Vrije Universiteit in collaboration with the management of the economics programmes of Erasmus University Rotterdam and Wageningen University updated the domain-specific reference framework for economics. The current reference framework is an update on a number of non-essential points of the 2009 edition, which was approved by the Deans of all Economics Faculties in the Netherlands. The major change has been the removal of sections referring to business administration.

The objectives of the programme are to educate students in various aspects of spatial economics, enabling them to understand and analyse the relationships between phenomena, such as urbanisation, migration, trade, infrastructure, location choice, accessibility, environment and safety. The programme aims to study these phenomena and relationships from an economic perspective. Knowledge and methods from related disciplines, such as geography, traffic management, environmental management and spatial planning are, however, addressed as well.

Programme management drafted the intended learning outcomes of the programme. These intended learning outcomes specify, among others, theoretical, methodological and empirical knowledge of relevant aspects of spatial economics, academic level of thinking, among which critical thinking and ethical awareness, research skills and professional skills to be able to address problems in the professional field. Students are especially trained in methods and techniques from microeconomics and econometrics.

Programme management drafted a table, to show the correspondence of the intended learning outcomes of the programme to the Dublin-descriptors for master programmes. From this table, it may be deduced the programme learning outcomes match these Dublin-descriptors.

The programme has been compared to similar programmes in the Netherlands and abroad. Programmes, which have been considered in this respect, are master programmes of University of Groningen, Radboud University, Utrecht University, University of Twente, University of Amsterdam, Wageningen University, University of Leeds, Swedish Royal Institute of Technology and London School of Economics. This programme emerges from the comparison as a programme, addressing all three sub-disciplines regional and urban economics, transport economics and environmental economics. The other programmes tend to focus on one of these sub-disciplines.

Programme management has a clear view on the requirements of the professional field and the job opportunities for the graduates of the programme.

Considerations

The panel is positive about the Faculty of Economics and Business Administration objectives to train the students not only in terms of academic and professional knowledge and skills but to train them equally to become responsibly thinking and acting professionals or academics in the economics field. The panel holds the opinion the latter to be a distinct and valuable characteristic of the Vrije Universiteit economics programmes.

The panel welcomes the efforts of this Faculty and of the economics programmes of Erasmus University Rotterdam and of Wageningen University to update the 2009 domain-specific reference framework.

During the site visit, the panel learned programme management has the intention to change the name of the programme into a name, more appealing and telling for prospective students. The panel supports this plan and recommends programme management to find a suitable name in this respect.

The panel is positive about the broadness and the depth of the programme objectives, to educate students to understand and analyse the relationships between a wide variety of spatial economics phenomena and to address all three sub-disciplines of spatial economics, being regional and urban economics, transport economics and environmental economics.

The panel studied the programme intended learning outcomes and observes these to meet the programme objectives, exhibiting, among others, disciplinary knowledge of theory and methods of spatial economics in a broad sense, academic level of thinking, research skills and professional problem-solving skills.

The intended learning outcomes of the programme match the Dublin-descriptors for master programmes and, therefore, meet the requirements of a master level programme.

Programme management conducted a sound comparison to other master programmes in the Netherlands and abroad in this field. The distinctive feature of this programme, addressing all three sub-disciplines of spatial economics, is evident from this comparison.

Assessment of this standard

These considerations have led the assessment panel to assess standard 1, *Intended learning outcomes* to be satisfactory.

5.2 Standard 2: Teaching-learning environment

The curriculum, staff and programme-specific services and facilities enable the incoming students to achieve the intended learning outcomes.

Findings

The responsibility for the programmes of the Faculty of Economics and Business Administration rests with the Dean of the Faculty, and the Faculty Board. Programme management, being the programme director and, in the Faculty's larger programmes, the programme director assisted by the programme coordinator, is responsible for the organisation and the contents of the programme and for assuring and maintaining the quality thereof. Programme management is advised on the programme quality by the Programme Committee, composed of an equal number of lecturers and students. As will be elaborated under standard 3, an Examination Board has been put in place, monitoring the examinations and assessments of the programme.

The number of students enrolling in the programme remained more or less stable over the last six years, going from an influx of 18 students in 2010 and 27 students in 2012 to an influx of 21 students in 2015. The incoming students have completed a bachelor programme at Vrije Universiteit (on average 40 %), have a bachelor degree from another Dutch university (on average 15 %) or come from abroad (45 % on average). In the last five years, there has been no influx of students having completed a vocational bachelor programme (hbo).

The admission procedures and admission requirements are subject to the Faculty-wide regulations for master programmes. Programme management monitors the admission of students carefully. Students are to have a bachelor in economics or in a related discipline and have to demonstrate adequate knowledge and understanding of microeconomics and econometrics. Students with deficiencies in these disciplines, may be admitted but are advised to update their knowledge. Students having serious deficiencies, for instance if they have completed the bachelor programme Spatial Planning, should take additional courses, before they may be admitted. For the programme, no standardised deficiency programme has been designed.

At the curriculum start, students take two compulsory courses on the methodology and research methods of microeconomics and econometrics. In addition, they have to select two core courses. Core courses are *Regional and Urban Economics*, *Transport Economics* and *Environmental Economics* and address the three sub-disciplines of spatial economics. In this way, students are acquainted with at least two of the sub-disciplines. They are allowed to take all three core courses. Students take one or two specialisation courses, which relate to the sub-disciplines. For the sub-disciplines regional and urban economics and transport economics, students can take the specialisation core course, an applied course, and can complement with another core course and an elective in the field of specialisation. For environmental economics, students can take the specialisation core course, a course on climate change, and can again complement with another core course and an elective. In the field of specialisation, this could be a course from the Institute of Environmental Studies, or somewhat further, but still relevant would be the *Geographical Information Systems* course or another elective from the other specialisation. Students conduct a literature review in the *Research Project*, which may be considered as the first step towards their master thesis. Students with whom the panel met, expressed their appreciation to be introduced to more than one sub-discipline and to gain, thereby, a comprehensive and interdisciplinary understanding of subjects and problems in this field.

Programme management presented a table in which the relations between the intended learning outcomes and the curriculum components have been specified. From this table, it may be deduced that all of the intended learning outcomes are addressed in one or more courses.

The educational principle of the programme is meant to transfer to students disciplinary knowledge and academic and research skills as well as professional skills and reflective and judgemental skills. Talented students are invited to participate in ongoing research in the department. Study methods are lectures, tutorials, working groups with individual and group assignments, presentation seminars and self-study. Interaction in lectures and tutorials between lecturers and students and among students is encouraged. The programme is rather small-scale, enabling this interaction. The study methods in the *Research Project* and in the master thesis are supervision on an individual basis. In addition in the *Research Project* and the thesis, students regularly meet to discuss parts of their projects, such as the problem definition and drafts. The lectures of the compulsory courses are shared by students of this programme and students from the economics or econometrics programmes of this Faculty. The students in this programme are offered tutorials in these courses, to tailor the subjects addressed to spatial economics.

To foster the introduction of new, innovative study methods, the Faculty of Economics and Business Administration has set up the Innovation Center. Lecturers are encouraged to suggest new study methods and may be granted financial support by the Faculty to develop or test their method. All innovations will be presented in the Innovation Center, with the purpose of other lecturers being informed about these methods, seeing the benefits and adopting these in their own classes.

Programme management monitors the study load of students and promotes students' study pace. The proportion of students completing the programme within one year is on average 38 %, whereas the average figure for completion within two years is 78 % (figures for last four to five years). The average study duration is 17 months (figure for last five years).

Lecturers are employed as researchers in one of the departments of the Faculty. The programme director is responsible for the deployment of the lecturers, discussing this with the department head. In the deployment process, the research and/or professional track records of the lecturers are being taken into account. Underperformance by lecturers will be signalled by the programme director and the Programme Committee. Unfavourable scores in students evaluations may adversely affect tenure track prospects. The number of staff in the programme is 21 lecturers in total. All of the lecturers obtained a PhD and 76 % are in the possession of the BKO-certificate, testifying to their capabilities in education.

Considerations

As the number of incoming students has been and seems to remain somewhat limited, the panel recommends to try and raise this number.

The panel considers the admission requirements and processes to be satisfactory. The requirements for entry are valid and programme management monitors the admission of students appropriately. The panel recommends, however, to further develop the deficiency programme and make it more suitable for international students. Students come from a variety of backgrounds. It is important for all students to start with an equal level of knowledge in the main subjects at the beginning of the programme.

The curriculum reflects all of the intended learning outcomes of the programme adequately and evenly. All the subjects and topics to be expected on the basis of the intended learning outcomes, are covered in the courses. The panel recommends, however, to raise the number of specialisation courses for the sub-discipline of environmental economics. Although the curriculum is adequate content-wise, the structure and coherence of the curriculum are somewhat lacking. Therefore, the panel recommends programme management to consider redesigning the curriculum to improve the coherence, taking the opportunity to reflect on the underlying concept of the curriculum.

The panel is satisfied about the educational principles and the study methods of the programme, as these are conducive to the students' learning processes. Study methods are lectures and small-scale tutorials, working groups and presentation seminars. The number of contact hours is adequate. The policies regarding the introduction and deployment of new and innovative study methods are satisfactory.

Programme management monitors the study pace of students and the student success rates adequately. The student success rates may be considered to be satisfactory, although the completion rate of 38 % in one year and the average study duration of 17 months could have been more favourable, given the small scale of the programme.

The panel approves of the lecturers deployment and evaluation procedures, as they ensure qualified lecturers to teach in the programme. The panel regards the lecturers to be very good researchers, working in the forefront of their field of expertise, and approves of the educational capabilities of the lecturers. The panel recommends programme management to intensify collaboration among lecturers, in order to strengthen the shared concept and the coherence of the programme.

Assessment of this standard

These considerations have led the assessment panel to assess standard 2, *Teaching-learning environment* to be satisfactory.

5.3 Standard 3: Assessment

The programme has an adequate assessment system in place.

Findings

The examinations and assessments of this programme, as of all the other programmes of the Faculty of Economics and Business Administration, are governed by the Vrije Universiteit Assessment Policy, this being part of the VU Quality Assurance Handbook, as well as by the Faculty Assessment Policy, which has been derived from this VU Assessment Policy. The examination and assessment rules and regulations of this and the other programmes of the Faculty are in line with these University and Faculty policy statements.

For this programme as well as for each of the other Faculty of Economics and Business Administration programmes, rules and regulations for the examinations and assessments have been specified and have been implemented. Firstly, programme management drafted an assessment plan, in which the courses' learning objectives are shown to cover the programme intended learning outcomes. This plan allows to verify whether the examinations of the courses comply with the intended learning outcomes of the programme. Secondly, programme management took a number of measures to promote the validity, reliability and transparency of examinations and assessments. To enhance the validity of the examinations, each of the examinations is prepared by one of the lecturers and is presented to another lecturer for review. The examiners ensure examinations to meet the course objectives and to conform to the intended learning outcomes of the programme. To foster the reliability of the assessments, answer models are being used by the examiners. This way, a degree of objectivity is introduced in the assessments. To promote the transparency of the examinations, students may inspect the grading of their work and examiners will explain the grading to students upon request. Thirdly, programme management ensures the examiners to have adequate expertise and competencies to fulfil their tasks. To this effect, examiners are formally appointed by the Examination Board, following the recommendation of the programme director. Fourthly, the examination methods or assessment types of the courses are to be consistent with the courses' learning objectives and study methods. In the assessment plan, these examination methods have been listed. Examination methods include written examinations with open questions, individual cases/papers, group cases/papers, computer assignments and presentations. In most courses, multiple examinations are to be taken by the students and the final grade of the courses is a composite grade, this being the weighed outcome of the grades of the course components.

At the end of the programme, students are required to complete their master thesis. In the thesis manual, the procedures and the timeline for the thesis have been stipulated. Students receive supervision of the thesis writing process by a supervisor, and take part in thesis classes, during which drafts are discussed. Students submit, present and defend their thesis. Theses are assessed by both the thesis supervisor and the second reader. These two examiners assess and grade the thesis independently and meet to arrive at the final grade. In case they cannot agree, the head of the department will be asked to grade the thesis. For the thesis assessment, the examiners use assessment forms, showing the criteria to be assessed. The programmes of the Faculty are in the transition process from these forms to scoring models or rubrics, specifying the assessment criteria and statements per criterion to support the grading. Theses are checked for plagiarism and plagiarism scores are mentioned on the assessment forms or scoring models.

For the programmes of the Faculty of Economics and Business Administration, two Examination Boards have been installed, one for all of the regular bachelor and master programmes of the Faculty and one for all of the accredited postgraduate programmes. As this is one of the regular bachelor and master programmes of the Faculty, the first mentioned Examination Board has the authority. The Examination Board consists of a number of members of the Faculty as well as an external expert on examinations and assessments. The Board monitors examinations and assessments processes, in accordance with the Faculty Regulations and Guidelines regarding Examinations. In addition, the Examination Board ensures examinations, including final examinations, to conform to quality standards. In recent years, the Board scheduled training sessions for examiners and analysed multiple-choice examinations. The Examination Board studies assessment plans to verify the contents thereof. In 2016 – 2017, written examinations with open questions are analysed as well. The Board inspects examinations on an at random basis and has the intention to inspect examinations and theses more systematically in the coming years.

Considerations

The panel is positive about the examination and assessment rules and regulations of the programme. They not only conform to the Vrije Universiteit and Faculty of Economics and Business Administration policy statements but also address subjects which are relevant for assuring the examinations and assessments quality. These rules and regulations include, among others, measures to assure the examinations' validity, the reliability of assessments and the competencies and expertise of examiners.

The panel approves of the examination methods, that programme management has selected. They are in line with the course contents to be assessed. The diversity of examination methods in courses and across courses allows for the assessment of both knowledge and skills, relevant to the programme.

Programme management drafted a comprehensive thesis manual, in which the timeline of the thesis writing process is explained clearly. The supervision and assessment of the thesis are well organised. The assessment of the theses is a reliable process, as at least two examiners are involved and sound assessment forms are used. The panel welcomes the transition process from assessment forms to scoring models or rubrics, as these may raise the quality of the assessments further.

The panel ascertained the Examination Board to have the responsibilities and to work along the lines, as intended by Dutch applicable law. The Board monitors the examination and assessment processes and inspects examinations. The panel recommends to step up these inspections and to include theses in the quality assurance checks, as is intended by the Examination Board.

Assessment of this standard

The considerations have led the assessment panel to assess standard 3, *Assessment* to be satisfactory.

5.4 Standard 4: Achieved learning outcomes

The programme demonstrates that the intended learning outcomes are achieved.

Findings

In the two most recent years, 2014 – 2015 and 2015 – 2016, the average grades for the master theses as estimations for the learning outcomes achieved by the graduates, were 7.4 and 7.3. Some of the theses are published in peer-reviewed journals.

The graduates of the programme are trained to enter the labour market or to pursue a PhD-trajectory. Graduates tend to find positions relatively easily. Some 80 % of the graduates found a job within three months after graduation. Graduates find a position in large companies in transportation, in firms in real estate and banking, with national government or in large municipalities. About 10 % to 15 % of the graduates are invited to start a PhD-trajectory.

Considerations

The panel studied examinations of a number of courses in the programme. The panel regards these examinations to be of adequate quality and of an appropriate level, meeting the courses' learning goals. The examinations are considered by the panel to be challenging and to address up-to-date subjects.

The panel studied four theses of students in the programme. These theses ranged from satisfactory to very good. Not one of the theses is considered by the panel to be unsatisfactory. The panel agrees with the grades of the theses, as given by the examiners.

The panel is positive about the positions the graduates have been able to obtain.

Assessment of this standard

The considerations have led the assessment panel to assess standard 4, *Achieved learning outcomes* to be satisfactory.

6. Recommendations

In this report, recommendations have been listed. For the sake of clarity, these recommendations are reproduced here.

- To give the programme another name than the present one, in order for it to be more telling to prospective students, as programme management is already planning to do.
- To try and raise the number of incoming students in the programme.
- To further develop the deficiency programme and make it more suitable for international students.
- To raise the number of specialisation courses for the sub-discipline of environmental economics.
- To consider redesigning the curriculum in order to improve the coherence, taking the opportunity to reflect on the underlying concept of the curriculum.
- To intensify the relationships and collaboration among the lecturers in the programme.
- To step up the inspections of examinations by the Examination Board and to include the theses in these quality assurance checks, as the Examination Board is already planning to do.

Annex 1: Site visit schedule

The site visit was conducted in Amsterdam on 18 November 2016. On 10 November 2016, the panel met with the Faculty Board. On 11 November 2016, the panel met with the Examination Board.

Site visit schedule for 10 November 2016.

09.00 h. – 09.45 h. Faculty Board
Prof. dr. W. Verschoor (Dean of Faculty Economics and Business Administration), drs. R. de Crom (Faculty Director of Education), M. Eigenhuis (Student Assessor Faculty Board)

Site visit schedule for 11 November 2016.

08.45 h. – 09.45 h. Examination Board regular bachelor programmes and master programmes
Examination Board postgraduate programmes
Prof. dr. B. van den Hooff (chair Examination Board regular programmes), prof. dr. H. van Herk (member Examination Board regular programmes), mr. drs. H. Welling (secretary Examination Board regular programmes), L. Spoor RA (chair Examination Board postgraduate programmes), prof. dr. F. Roozen (former chair Examination Board postgraduate programmes), B. de Graaff MSc (secretary Examination Board postgraduate programmes)

Site visit schedule for 18 November 2016.

08.30 h. – 09.00 h. Arrival and deliberations panel (closed session)

09.00 h. – 09.45 h. Programme management Master Accounting and Control (full-time, part-time)
Prof. dr. K. Camfferman (programme director, Master Accounting and Control), dr. E. Wiersma (associate professor, Master Accounting and Control)

09.45 h. – 10.30 h. Lecturers and examiners Master Accounting and Control (full-time, part-time)
Mr. A. Brink-Van der Meer (lecturer, chair Programme Committee Master Accounting and Control), dr. M. Schoute (assistant professor, member Programme Committee, Master Accounting and Control), prof. dr. J. Wielhouwer (Professor of Economics and Accounting and Control, Master Accounting and Control)

10.30 h. – 11.00 h. Students and alumni Master Accounting and Control (full-time, part-time)
M. Mannachi BSc (student, member Programme Committee Master Accounting and Control, full-time), K. Harjanto BSc (student, member Programme Committee Master Accounting and Control, full-time), J. Boots BSc (student, Master Accounting and Control, full-time), S. Vink BSc (student, Master Accounting and Control, full-time), W. Nevel BSc (student, Master Accounting and Control, full-time), R.A. Rienstra BSc (student, Master Accounting and Control, part-time), D. Elstgeest MSc (alumna, Master Accounting and Control, part-time), D. Bastiani MSc (alumnus, Master Accounting and Control, part-time)

- 11.15 h. – 12.00 h. Programme management, lecturers and examiners Master Risk Management for Financial Institutions
Dr. R. Zwinkels (programme director, Master Risk Management for Financial Institutions), drs. J. van der Ende (member Curatorium, Master Risk Management for Financial Institutions), prof. dr. M. Damm (Professor of Risk Management, Master Risk Management for Financial Institutions), prof. dr. Th. Kocken (Professor of Risk Management for Institutional Investors, Master Risk Management for Financial Institutions), dr. R. Bosman (semester coordinator, Master Risk Management for Financial Institutions), dr. C. Bonner (lecturer, Master Risk Management for Financial Institutions)
- 12.00 h. – 12.30 h. Students and alumni Master Risk Management for Financial Institutions
Drs. L. Thissen (second year student, Master Risk Management for Financial Institutions), drs. R. van Dijk (second year student, Master Risk Management for Financial Institutions), drs. M. Geene (alumnus, Master Risk Management for Financial Institutions), O. Pennin MSc (alumnus, Master Risk Management for Financial Institutions)
- 12.30 h. – 13.30 h. Lunch panel (closed session), open office hours 12.30 h. – 13.00 h.
- 13.30 h. – 14.15 h. Programme management Master Spatial, Transport and Environmental Economics
Prof. dr. J. van Ommeren (programme director, Master Spatial, Transport and Environmental Economics), prof. dr. E. Verhoef (Professor of Spatial Economics, head of Department Spatial Economics, Master Spatial, Transport and Environmental Economics), prof. dr. H. de Groot (Professor of Regional Dynamics, Master Spatial, Transport and Environmental Economics)
- 14.15 h. – 14.45 h. Lecturers and examiners Master Spatial, Transport and Environmental Economics
Dr. Th. de Graaff (assistant professor, Master Spatial, Transport and Environmental Economics), dr. S. Poelhekke (associate professor, Master Spatial, Transport and Environmental Economics), dr. G. van der Meijden (assistant professor, Master Spatial, Transport and Environmental Economics), dr. J. Dekkers (assistant professor, Master Spatial, Transport and Environmental Economics)
- 15.00 h. – 15.30 h. Students and alumni Master Spatial, Transport and Environmental Economics
W. Tan Li BSc (student, member Programme Committee, Master Spatial, Transport and Environmental Economics), G. van den Born (student, Master Spatial, Transport and Environmental Economics), F. Ostermeijer (alumnus, Master Spatial, Transport and Environmental Economics)
- 15.30 h. – 17.30 h. Deliberations panel (closed session)
- 17.30 h. – 18.00 h. Main findings presented by panel chair to the programme management

Annex 2: Documents reviewed

The panel studied the following documents, presented prior to the site visit

- Critical Reflection Report Limited Programme Assessment Master Spatial, Transport and Environmental Economics
- Redesign Faculty of Economics and Business Administration programmes
- Domain-specific frame of reference
- Intended learning outcomes
- Programme overview 2015 – 2016
- Course descriptions 2015 – 2016
- Assessment plan 2016 – 2017
- Thesis manual and assessment form 2015 – 2016
- Academic and Examination Regulations 2015 – 2016
- Rules and Regulations regarding examinations 2015 – 2016
- Overview of academic staff, including quality
- List of graduates in academic years 2014 – 2015 and 2015 – 2016
- Intake, drop out and success rates
- Staff/student ratio
- Average number of contact hours

On the day of the site visit, programme management presented the following documents

- Applications and enrolments figures
- Course material of a number of selected courses of the programme
- Examinations of a number of selected courses of the programme
- Programme management annual reports
- Programme Committee annual reports
- Examination Board annual reports

Annex 3: Theses reviewed

The theses of the following four students have been selected for review by the panel

- 2518222
- 2081156
- 2545493
- 2030101

Annex 4: Assessment panel composition

The assessment panel had the following composition:

- Prof. dr. T.J. Wansbeek, Emeritus Professor of Statistics and Econometrics, University of Groningen (panel chair);
- Prof. dr. J. Hartog, Emeritus Professor of Microeconomics with visiting scholar position, University of Amsterdam (panel member);
- Prof. dr. R. Kabir, Professor and Chair of Corporate Finance and Risk Management, University of Twente (panel member);
- S.M. van den Hoek, student Bachelor programme Tax Economics, University of Amsterdam (student member).

Prof. dr. T.J. Wansbeek, panel chair

Mr. Wansbeek is Emeritus Professor of Statistics and Econometrics at University of Groningen. He took his doctorate from University of Leiden. Among others, he held positions as Professor of Microeconomics at University of Amsterdam, as the Dean of the Faculty of Economics and Business of University of Amsterdam and as the Dean of the Faculty of Economics of University of Groningen. He was and is an editorial board member of a series of academic journals, such as *Journal of Econometrics*. Mr. Wansbeek held and holds a number of visiting scholar positions at, among others, University of Southern California, United States and Zhejiang University, China.

Prof. dr. J. Hartog, panel member

Mr. Hartog is Emeritus Professor of Microeconomics at University of Amsterdam, holding a visiting scholar position at this university. He took his doctorate from Erasmus University Rotterdam. At this university, he held the position of researcher and associate professor, subsequently becoming Professor of Microeconomics at University of Amsterdam. He held a number of visiting positions at universities in countries Europe, the United States and Asia. He also was an editor and referee for a number of international academic journals. Mr. Hartog is a member of the Royal Netherlands Academy of Sciences.

Prof. dr. R. Kabir, panel member

Mr. Kabir is Professor and Chair of Corporate Finance and Risk Management at University of Twente and Head of the Department of Finance and Accounting. He took his doctorate from Maastricht University. He held visiting scholar positions at, among others, Central University of Finance and Economics, Beijing, China, New York University, United States and University of Melbourne, Australia. Before becoming Professor at University of Twente, Mr. Kabir was Associate Professor of Finance at Tilburg University and Professor of Finance at University of Stirling, United Kingdom.

S.M. van den Hoek, student member

Ms. Van den Hoek is a student in the Bachelor programme Tax Economics of University of Amsterdam. She has taken on a number of extra-curricular activities, such as being the chair of the Student Association of her programme and being a member and the chair of the Student Council of the Faculty of Economics and Business of University of Amsterdam. In addition, Ms. Van den Hoek is employed by Canal Company as a guide and a host.