Preface

The 2015 annual research report of the Amsterdam School of Economics (ASE) documents the organisation, activities and results of its research institute ASE-RI. The funding of the institute provides the financial means for its staff members to write scientific papers and dissertations, attend and organise international workshops and conferences and supervise PhD students.

The ambition of the ASE-RI is for the Amsterdam School of Economics to become a European top 10 Economics department based on its research output in Micro-Economics, Macro-Economics and Quantitative Economics. The research time allocation of the members of ASE-RI is made in line with this ambition. It is therefore aligned with the Research Fellow criteria of the Tinbergen Institute. Newly recruited junior faculty start out as tenure-track assistant professors. The criteria for receiving tenure parallel those for becoming a Tinbergen Institute research fellow.

The overall number of refereed publications in 2015 is slightly less, but comparable with that in previous years. There were no top five general interest journal publications in 2015 but a considerable number in top field journals which are considered a notch below. Noteworthy is that the research priority area Behavioural Economics succeeded in obtaining another 300K Euro research grant from the University of Amsterdam for the proposal “Complex Human System Labs”.

The Amsterdam School of Economics and therefore also ASE-RE pride themselves with their large number of highly qualified successful researchers whose research is documented in this yearly report.

Prof. dr. Frank Kleibergen
Director of the Amsterdam School of Economics Research Institute
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CHAPTER 1: INSTITUTIONAL OVERVIEW

1.1 MISSION STATEMENT

ASE-RI (Amsterdam School of Economics Research Institute) facilitates and promotes research at ASE to foster the academic ideal of intertwined university teaching and research. The institute aims for research results that significantly improve our understanding of the operation of economic systems, the behaviour of agents in the economy and the effects of economic policies. ASE-RI aims to appraise researcher performance and to provide a directive for further research with its standards for research. Research time is allocated to researchers based on their performance.

1.2 ORGANISATION

ASE-RI, the research institute of the Amsterdam School of Economics, is one of the two research institutes of the Faculty of Economics & Business (FEB); the other being the research institute of the Amsterdam Business School (ABS-RI). ASE-RI covers the wide area of economics, econometrics and actuarial science.

Research is organised in Research Programmes, which are directed by Programme leaders who are experts with core positions in the curriculum. Stimulating research that significantly improves our understanding of the economy is meant as a focus on fundamental research. In many cases, the inspiration for research questions derives from practical problems in business and society as well as from pressing problems for government policies, as is only natural for a social science. But the research results should primarily be reported to the international academic community and assessed against the quality standards that apply there. Such permanent quality assessment feeds back into the quality of teaching and of advice given to business and the government. Contributions to public debates should be a consequence of developing reliable knowledge about the economy rather than a primary goal.

In addition to the Research Programmes, ASE-RI also hosts the Research Priority Area (RPA) Behavioural Economics. This is one of the 20 fields in which the UvA wishes to actively foster further development. Researchers from the several programmes participate in the RPA Behavioral Economics, in particular in the fields of experimental economics, industrial organization, labour economics, and complex socio-economic systems. In 2014, ASE-RI and ABS-RI jointly have taken the initiative for a research focal area of the Faculty of Economics and Business on Risk and Macro Finance, in which researchers from (behavioural) finance, macro-economics, and actuarial science participate.

ASE-RI closely co-operates with the Tinbergen Institute, where many of ASE-RI’s researchers are appointed as fellow. The Tinbergen Institute also acts as the graduate school for ASE-RI students.

1.3 STRATEGY AND POLICY

ASE-RI aims to reach its goals by organising, stimulating and monitoring Research Programmes. Annually, programme performance is assessed. Means are allocated to programmes based on performance. Research coverage is not directed and controlled by the Faculty’s management, but develops in an open competitive environment. General policy issues are discussed by the Council of Programme Directors.
The main strategic aim of ASE-RI is to produce research in (quantitative) economics with, on the one hand, a high impact on the international academic research agenda, and on the other hand a strong societal relevance.

The first aim is in line with ASE’s ambition to become a Top-10 school in Europe in each of the broad areas micro-economics, macro-economics, and quantitative economics (as stated in the ASE Strategic Plan of March 2016). The ambition implies that quality of publications has more emphasis than quantity. Although some variation in publication culture exists among the research groups, it means that researchers are encouraged to aim at publishing in the top economics journals and in field journals with a high citation impact (currently measured by the Article Influence Score, AIS). The strategy to reach these aims consists of the following elements.

**Personnel policy**

As stated in the ASE Strategic Plan, vacancies for new research staff are to be filled at the tenure track level. The school has adopted a 6-year tenure track, with a mid-term review after 3 years. Tenure criteria include, in addition to teaching performance and external funding, the ability to qualify as Research Fellow of the Tinbergen Institute, which requires that five publications in a recent five-year period are in journals with a cumulative AIS of five. In addition, ASE-RI requires that at least three publications are in a medium-impact field journal, or one in a Top-5 journal. As of 2014, recruitment of tenure track assistant professors occurs through the American academic job market, where a joint ASE recruitment committee aims to attract the most talented candidates, in line with the teaching requirements of the research-based bachelor and master programmes that the school offers in combination with the school’s Top-10 ambition. Tenure and promotion decisions are made by the Dean. The promotion and Tenure (P&T) Committee advises the Dean based on a standard set of criteria and after the consultation of full professors in the department.

**Research time allocation**

Each year, tenured faculty members with a research appointment (assistant, associate and full professors) are allocated research time based on research output. Currently the maximum research time for fulltime appointments (except for externally funded research) is 0.5 fte. As of 2014, the criteria for this maximum research time are aligned with criteria for Research Fellowship of the Tinbergen Institute, as indicated above. Researchers who do not satisfy these criteria may earn 0.25 fte, if their research output satisfies the corresponding fraction of the TI criteria. ASE-RI aims to appraise researcher performance and to provide a directive for further research with its standards for research.

**PhD programme and placement**

A third approach to increasing the school’s international research impact is through its PhD programme. As detailed below, ASE-RI’s PhD programme is organised by the Tinbergen Institute graduate school. Through a systematic process of training, research supervision and job market preparation, the school aims at (and has succeeded in) placing its PhD graduates at good European and American departments.

ASE-RI also stimulates concentration of the school’s research in Research Programmes by other means (such as providing an annual budget for conference visits and other academic activities to the Research Programmes).

### 1.4 TARGETS

In view of the general aims, the specific targets related to research that are stipulated in the FEB’s strategic plan 2015-2020 are:

- A gradual increase in the percentage of the internal research funds spent on research in the RPA;
- A growth in the number publications per research fte, in top journals;
• An increase in the percentage of PhD projects completed within four years;
• An increase in the number of PhD defences;
• An increase in the percentage of research funded by the second stream (NWO, KNAW, ERC, EU);
• An increase in the number of personal grants and distinctions;
• An increase in the number of research projects, and income derived from “second money stream” and “third money stream” funding;
• Placement success of PhDs (percentage of PhDs getting placed at either a very good academic institution, or non-academic high profile organisations).

These targets were set at the faculty level, but are in line with the targets for the ASE-RJ research programmes, with an emphasis on further growth of external funding to compensate for the expected decline in internal funding for tenured research and PhD positions. A further target is to attract excellent candidates for tenure track assistant professorship positions from the American academic job market, to help realise the ambition to become one of the Top-10 schools in Europe in Economics.
CHAPTER 2: INPUT

2.1 RESOURCES AND OTHER PERSONNEL

Personnel policy and human resource management are the domain of the department chairs and section heads. ASE-RI encourages the sections to hire good researchers and to stimulate faculty to increase the quality and quantity of academic publications, and has a vote in promotion and tenure decisions. Broader strategy issues concerning hiring and firing are discussed within the Amsterdam School of Economics management team and this has resulted in a document on personnel policies in which the requirements that current and new staff should meet are clearly defined.

The tables below give information on ASE-RI faculty. Table I shows that in 2013, the overall research capacity was relatively high. In 2014 the research capacity declined, although the number of PhD students still increased, in line with previous years. In 2015, the overall research capacity declined further. This year, the number of PhD students declined as well. A noticeable change is both the absolute and relative increase of the number of staff financed by the third flow of funds.

Table I: Input research staff at institutional level (FTE)

<table>
<thead>
<tr>
<th></th>
<th>fte</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
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<tbody>
<tr>
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<td>20,90</td>
<td>18,83</td>
<td>18,04</td>
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<td>WP 2 (second flow of funds, excl. PhD's)</td>
<td>8,11</td>
<td>8,23</td>
<td>6,26</td>
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</tr>
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<td>WP 3 (third flow of funds, excl. PhD's)</td>
<td>33,93</td>
<td>30,67</td>
<td>34,27</td>
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</tr>
<tr>
<td>PhD students</td>
<td>27,98</td>
<td>30,34</td>
<td>27,81</td>
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<tr>
<td>Total Research staff</td>
<td>90,92</td>
<td>88,07</td>
<td>86,38</td>
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<td>Support staff ASE-RI (bureau)</td>
<td>0,89</td>
<td>0,89</td>
<td>0,89</td>
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<tr>
<td>Total Staff</td>
<td>91,81</td>
<td>88,96</td>
<td>87,27</td>
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Table II: Input research staff at programme level (FTE)

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<tr>
<th>Programme</th>
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<th>2014</th>
<th>2015</th>
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<td><strong>UvA-Econometrics</strong></td>
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<td></td>
<td></td>
<td></td>
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<td>WP 3 (third flow of funds, excl. PhD's)</td>
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<tr>
<td>PhD students</td>
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<td>3,73</td>
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<tr>
<td>Total Research staff</td>
<td>6,14</td>
<td>5,93</td>
<td>5,38</td>
<td></td>
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<tr>
<td><strong>Equilibrium, Expectations &amp; Dynamics</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>WP 1 (first flow of funds, excl. PhD's)</td>
<td>2,41</td>
<td>2,91</td>
<td>3,06</td>
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<tr>
<td>WP 2 (second flow of funds, excl. PhD's)</td>
<td>2,67</td>
<td>2,58</td>
<td>1,95</td>
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<td>WP 3 (third flow of funds, excl. PhD's)</td>
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<td>PhD students</td>
<td>3,60</td>
<td>2,47</td>
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<tr>
<td>Total Research staff</td>
<td>9,42</td>
<td>8,76</td>
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<tr>
<td><strong>Actuarial Science &amp; Mathematical Finance</strong></td>
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<td>WP 1 (first flow of funds, excl. PhD's)</td>
<td>1,16</td>
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<td>0,68</td>
<td>2,11</td>
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</tr>
<tr>
<td>PhD students</td>
<td>1,92</td>
<td>3,39</td>
<td>3,39</td>
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<tr>
<td>Total Research staff</td>
<td>5,59</td>
<td>6,62</td>
<td>6,88</td>
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</table>
As shown in table III, most faculty are in the ranks of full professor and PhD student (the number of researcher (oz) fte is highest, but the majority are working at SEO Economic Research). Overall there seems to be a healthy mix of researchers in different stages of their career, although the numbers of associate professors and postdocs are low.

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<tr>
<td>WP 3 (third flow of funds, excl. PhD's)</td>
<td>1.40</td>
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<tr>
<td>PhD students</td>
<td>1.46</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Total Research staff</td>
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<td>3.64</td>
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<td>PhD students</td>
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<tr>
<td>Total Research staff</td>
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<td>Total Research staff</td>
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<td>Total Research staff</td>
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<tr>
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<td>28.64</td>
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Table III: Ranks at programme level

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<th>Ud</th>
<th>Oz</th>
<th>Postdoc</th>
<th>PhD</th>
<th>Guest</th>
<th>Total</th>
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<td>Actuarial science</td>
<td>3</td>
<td>1,45</td>
<td>0</td>
<td>0,00</td>
<td>5</td>
<td>1,39</td>
<td>0</td>
<td>0,00</td>
</tr>
<tr>
<td>MInt</td>
<td>8</td>
<td>2,53</td>
<td>0</td>
<td>0,00</td>
<td>7</td>
<td>2,21</td>
<td>0</td>
<td>0,00</td>
</tr>
<tr>
<td>Human Capital</td>
<td>4</td>
<td>1,88</td>
<td>0</td>
<td>0,00</td>
<td>1</td>
<td>0,56</td>
<td>0</td>
<td>0,00</td>
</tr>
<tr>
<td>Experimental &amp; political economics</td>
<td>6</td>
<td>2,17</td>
<td>0</td>
<td>0,00</td>
<td>5</td>
<td>0,80</td>
<td>1</td>
<td>0,80</td>
</tr>
<tr>
<td>Markets &amp; Organizations</td>
<td>4</td>
<td>1,08</td>
<td>1</td>
<td>0,50</td>
<td>5</td>
<td>1,75</td>
<td>0</td>
<td>0,00</td>
</tr>
<tr>
<td>SEO economic research</td>
<td>1</td>
<td>0,80</td>
<td>0</td>
<td>0,00</td>
<td>0</td>
<td>0,00</td>
<td>0</td>
<td>0,00</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>12,86</td>
<td>6</td>
<td>2,37</td>
<td>26</td>
<td>7,92</td>
<td>47</td>
<td>31,41</td>
</tr>
</tbody>
</table>

* hgl=professor, uhd=associate professor, ud=assistant professor, oz=researcher, pdoc=postdoctoral fellow

2.2 RESOURCES, FUNDING AND FACILITIES

A substantial part of the faculty’s research budget is spent on the Tinbergen Institute, where it is used to cover the expenses of the MPhil programme, courses for both MPhil and PhD students and the organisation of seminars. Another large part of the budget concerns funding of the research priority area ‘Behavioural Economics’.

Furthermore, the sections of ASE are allocated a budget for matching and a budget for its Research Programmes. The current faculty allocation mechanism, whereby research funding of the first category is allocated to the research programmes, was developed after a major faculty reorganisation in 2010, which became necessary when the faculty was facing rapidly increasing deficits at the end of 2009. Currently the entire research budget of the faculty of the first category is a lump sum determined by the university based on Bachelor and Master diplomas and on the number of completed PhD theses. It is divided between the research programmes based on their number of completed PhD theses and on research time allocated to their individual researchers. This budget can be used for the funding of research fte’s and for any research related activities of programme members, such as visiting conferences, conducting experiments and collecting data.
CHAPTER 3: CURRENT STATE OF AFFAIRS

3.1 PROCESSES IN RESEARCH, INTERNAL AND EXTERNAL COLLABORATION

As explained in previous chapters, ASE-RI allocates resources based on past performance. ASE-RI stimulates and facilitates application for external funding (NWO, KNAW, EU). In general, the research institute tries to stimulate an active research environment, and it tries to assist programme members, when necessary, by providing them with information and administrative support. The overall quality of the various seminar series is good. Especially in the Tinbergen Institute series foreign speakers are usually invited and the debates are lively.

Actual research management takes place within the Research Programmes. Decisions on research strategies, research topics, joint work, participation in international networks and publication outlets are all taken within these Programmes, sometimes by the Programme director, but mostly in an informal way by direct communication and interaction within these groups. Research groups are typically small and interaction is frequent, direct and effective.

**Box I: Seminar series organised in co-operation with ASE-RI**

Tinbergen Institute / CREED Seminars series  
Organisation: Jeroen van de Ven and Joël van der Weele

Tinbergen Institute Econometrics Seminars & Workshops series  
Organisation: Simon Broda and Frank Kleibergen

Tinbergen Institute PhD Lunch Seminars Series  
Organisation: Jindi Zheng and Oana Furtuna

Tinbergen Institute Organizations & Markets Double Seminars  
Organisation: Sander Onderstal and Jose L. Moraga-Gonzalez

Tinbergen Institute Macro Seminars  
Organisation: Christian Stoltenberg and Björn Brügemann

Tinbergen Institute Complexity in Economics seminar series  
Organisation: Isabelle Salle and Marco van der Leij

KAFFEE Lunch seminar  
Organisation: Stephanie Chan, Egle Jakucionyte, Joep Lustenhower and Francisco Gomez Martinez

Another way in which ASE-RI creates a stimulating research environment is by participating in the Tinbergen Institute (TI). Two other Dutch universities (Erasmus University and VU University) participate in the TI. It is their joint graduate school which facilitates exchange amongst its fellows (top researchers of the three participating faculties) by hosting seminar series and publishing a discussion paper series.
3.2 PHD PROGRAMME

The PhD programme of ASE-RI is organised by the graduate school in Economics, Econometrics and Finance of the Tinbergen Institute (TI). It involves completing TI’s 2-year MPhil research master programme before the start of the PhD appointment, a process of matching and selection of students during the second year of the MPhil programme, a three-year appointment as PhD student at one of the three participating universities, and (for those students who aim for an academic career after graduation) a preparation for the international academic job market. The advantage of this system is that it offers students an excellent research-oriented two-year programme with good opportunities to meet top-level supervisors (TI-fellows).

Table IV: PhD Inflow 2005-2015

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1st flow of fund projects</td>
<td>1</td>
<td>4,5</td>
<td>5</td>
<td>7</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>9</td>
<td>11</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>2nd flow of fund projects</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>3rd flow of fund projects</td>
<td>2</td>
<td>1,5</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total projects started</td>
<td>4</td>
<td>9</td>
<td>9</td>
<td>12</td>
<td>10</td>
<td>5</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>8</td>
<td>13</td>
</tr>
</tbody>
</table>

The number of PhD students starting a PhD project within ASE-RI was uneven in previous years and stabilized around an annual inflow of around 9 since 2006. After a decline in 2010, the inflow increased in the years between 2011 and 2015, with a short decline in 2014. As can be seen from Table IV, there are major differences between the flows of fund.

In recent years the outflow of students from the Tinbergen Institute who completed their MPhil was sufficient to fill in all PhD vacancies.

Table V: PhD completion rates

<table>
<thead>
<tr>
<th>Starting year</th>
<th>Inflow</th>
<th>Graduated in year 4 or earlier</th>
<th>Graduated in year 5 or earlier</th>
<th>Graduated in year 6 or earlier</th>
<th>Not yet finished</th>
<th>Discontinued</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td># %</td>
<td># %</td>
<td># %</td>
<td># %</td>
<td># %</td>
</tr>
<tr>
<td>2006</td>
<td>9</td>
<td>1 11%</td>
<td>2 22%</td>
<td>7 78%</td>
<td>2 22%</td>
<td>0 0%</td>
</tr>
<tr>
<td>2007</td>
<td>9</td>
<td>0 0%</td>
<td>3 33%</td>
<td>8 89%</td>
<td>1 11%</td>
<td>0 0%</td>
</tr>
<tr>
<td>2008</td>
<td>12</td>
<td>7 58%</td>
<td>8 67%</td>
<td>9 75%</td>
<td>1 8%</td>
<td>2 17%</td>
</tr>
<tr>
<td>2009</td>
<td>9</td>
<td>5 56%</td>
<td>7 78%</td>
<td>7 78%</td>
<td>2 22%</td>
<td>0 0%</td>
</tr>
<tr>
<td>2010</td>
<td>5</td>
<td>0 0%</td>
<td>4 80%</td>
<td>4 80%</td>
<td>1 20%</td>
<td>0 0%</td>
</tr>
<tr>
<td>2011</td>
<td>13</td>
<td>4 31%</td>
<td>9 69%</td>
<td>-</td>
<td>4 31%</td>
<td>0 0%</td>
</tr>
</tbody>
</table>

Although the completion rates vary over the years, it is remarkable that the percentage of PhD projects completed in 5 years or less has grown over the years: of cohort 2006, only 22% graduated within 5 years, whereas in cohorts 2009-2011, on average 76% graduated within 5 years. More recent experience substantiates the claim that as the proportion of PhD students following the TI programme increases, the percentage of students finishing within 4 years will increase further. This can be partly explained by the fact that such students only have a salaried position for three years, as opposed to the four-year positions in the past. Furthermore, students entering such four year positions typically lack a research master background, and therefore have to complete a substantial amount of coursework in the first year of their PhD appointment. By contrast, the writing of an MPhil thesis, which typically
will end up in the PhD thesis as a first chapter, gives MPhil graduates a head start. Most importantly, however, students who have completed the MPhil programme have been pre-selected based on academic talent and motivation, and have been exposed for two years to a peer group of similarly ambitious and talented students. It is clear that this peer group is increasingly focused on the academic job market, and hence on producing a single-authored job market paper within a period of two years after starting the PhD project, which, in combination with the factors mentioned earlier, will lead to improving PhD completion rates.

In 2011, 4 additional PhD projects started at ASE, in the context of the doctoral programme European Doctorate in Economics - Erasmus Mundus (EDEEM), which started in 2009. EDEEM gathers seven leading European institutions and is coordinated by Universität Bielefeld in Germany. PhD projects within this programme concern joint doctorates, which means that the preparation of the PhD thesis is carried out in 2 or more partner universities within the consortium. PhD students bring their own living allowances, that are covered by the EU. All 4 PhD students who started in 2011 have graduated within 55 months. In both 2013 and 2014, 2 more PhD students started at ASE and in 2015, 1 PhD student started.

### Table VI: PhD placement

<table>
<thead>
<tr>
<th>Year of dissertation</th>
<th>Top academic or high-profile international organisation</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td></td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td>11</td>
<td>61</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td>3</td>
<td>38</td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td>7</td>
<td>54</td>
</tr>
</tbody>
</table>

Students with an ambition to develop a career in academia after finishing their PhD are actively encouraged to participate in TI’s job market preparation programme. This involves, among other things, feedback to improve the CV and reference letters, and mock job seminars and interviews to prepare for the American academic job market. In contrast with common practice up to a decade ago, in general ASE does not select tenure track candidates from its own pool of graduated PhD students. As mentioned above, the group of PhD students that enter the programme through TI’s MPhil programme is increasingly oriented towards the academic job market. Out of the 5 ASE-RI students who defended their PhD thesis in 2015, 54% of the initial placement was at a university from the top 200 of the QS ranking in the subject category Economics & Econometrics or a high-profile international organisation such as the International Monetary Fund.

### 3.3 ACADEMIC REPUTATION

In the most recent Tilburg University Top 100 of Economics Schools Research Ranking (2014) the Faculty of Economics and Business was ranked 2nd in the Netherlands, 5th in Europe and 23rd worldwide.\(^1\) This differs from the results of the ESB Economen-top 40 of 2015, where UvA ranked 3rd.

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\(^1\) [https://econtop.uvt.nl/rankinglist.php](https://econtop.uvt.nl/rankinglist.php).
in the Netherlands\textsuperscript{2}. The 201 QS World University Rankings by Subject puts the UvA in rank 41 for the discipline Economics and Econometrics (3\textsuperscript{RD} in the Netherlands).\textsuperscript{3}

### 3.4 OVERVIEW OF RESULTS

**Figure I: Publications 2011-2015**

Figure I shows that in 2012 the output declined. Although the research input had picked up again after a reorganization of the Faculty of Economics and Business in 2010, PhD students had by then taken up an increasing proportion of the scientific staff, substituting part of the senior research faculty. In 2013, the research input increased further to 90,92 research fte (see table I), along with a further increase in the proportion of PhD students. The output increased slightly. In 2014 and 2015 however, both the research input (88,07 fte and 86,38 respectively) and the output decreased. In 2015 the proportion of PhD students had also started to decrease.

**Table VII: Refereed articles 2015**

<table>
<thead>
<tr>
<th></th>
<th>Top</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>UvA-Econometrics</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Equilibrium, Expectations and Dynamics</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Actuarial Science &amp; Mathematical Finance</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Macro and International Economics</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Human Capital</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Experimental &amp; Political Economics</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>Markets &amp; Organizations</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>SEO</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total ASE-RI\textsuperscript{*}</strong></td>
<td><strong>44</strong></td>
<td><strong>51</strong></td>
</tr>
</tbody>
</table>

*duelations removed

\textsuperscript{2} http://www.economie.nl/artikel/economomentop-40-2015.
\textsuperscript{3} http://www.topuniversities.com/university-rankings/university-subject-rankings/2015/economics-econometrics.
ASE-RI aims to increase the quantity and quality of its publications, in particular in refereed journals. For this purpose, publications are graded by the quality level of the journals. Based on the Article Influence Percentile Score, top publications can be distinguished. Table VII shows that overall, the number of publications in top-refered journals is a little bit lower than publications in other journals. See table VIII for an overview of the output of the research groups.

Table VIII: Aggregated results of the institute

<table>
<thead>
<tr>
<th>Institute</th>
<th>Articles in journals</th>
<th>Books or book chapters</th>
<th>Conference proceedings</th>
<th>PhD theses</th>
<th>Working papers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Refereed</td>
<td>Non-refereed</td>
<td>Professional</td>
<td>Popular</td>
<td>Refereed</td>
</tr>
<tr>
<td>UvA-Econometrics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equilibrium, Expectations &amp; Dynamics</td>
<td>10</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Actuarial Science &amp; Mathematical Finance</td>
<td>13</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Macro and International Finance</td>
<td>13</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Human Capital</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Experimental &amp; Political Economics</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Markets &amp; Organizations</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>SEO</td>
<td>16</td>
<td>6</td>
<td>25</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>9</td>
<td>37</td>
<td>10</td>
<td>6</td>
</tr>
</tbody>
</table>

Figure II: FEB Dissertations

*Category I: students who worked at FEB and graduated at FEB, II: external candidates who graduated at FEB.

1 All journals with an Article Influence percentile score of $\geq 80$ are considered to be “top”. A journal's Article Influence score is a measure of the average influence of each of its articles over the first five years after publication. Scores are based on [www.eigenfactor.org](http://www.eigenfactor.org).
The year 2012 showed a particular high increase of completed dissertations compared to previous years. After a decline in 2013 and 2014, the number increased to 14 in 2015. It is expected that the number will be around the average level of the last 3 years, in the years to come.

3.5 RELEVANCE TO SOCIETY

Although the main aim of ASE-RI is to let its research contribute to the international academic discourse, most research done within ASE-RI programmes contributes in several ways to society at large. Some examples are given here but more detailed information can be found in the programme sections in part B of this report.

The Human Capital Research Programme participates in TIER, an inter-university top Institute that conducts research in the field of evidence based education. The Top Institute wants to develop knowledge of ‘evidence based education’ that can be utilised by: 1) the Ministry of Education, Culture and Science in policy preparation and evaluation; 2) the educational practice – for example in educational institutions – in the allocation of resources and in the decision making process when choosing between educational theories; and 3) parents and students when choosing a school or training.

Researchers from the programmes Macro and International Economics and Actuarial Science & Mathematical Finance have strong ties with NETSPAR (network for studies on pensions, aging and retirement) and their research results will strongly impact the ways in which government and society will deal with the problems in these areas. In 2012 the Chair in Pension Economics was established, sponsored by MN. In addition, MInt has PhD students financed by De Nederlandsche Bank.

SEO Economic Research carries out contract research for ministries and public organisations, private companies and non-profit institutions, nationally and internationally. SEO distinguishes itself from other research bureaus by its analytical approach. Modern economic analysis is applied to practical issues. Empirical questions are tackled with the econometrics toolkit.
CHAPTER 4: RESEARCH PRIORITY AREA: BEHAVIOURAL ECONOMICS

4.1 BACKGROUND

The Board of the University of Amsterdam set out a policy to create a number of Research Priority Areas to move already promising areas to further excellence. Behavioural Economics, an important field within the Amsterdam School of Economics (ASE), was selected as one of them and started late 2008. The goal of the Priority Area is to promote research in the field of Behavioural Economics. Behavioural Economics focuses on economic decision-making and goes beyond traditional economic theories that assume rationality and narrow self-interest: social preferences, emotions and bounded rationality are taken seriously. Behavioural economists therefore make extensive use of insights and theories of adjacent disciplines like psychology, sociology and political science. However, it is a typical economic science by the choice of topics and the way data are analysed and models are developed.

Research in Behavioural Economics has a strong empirical foundation; data are gathered in laboratory or field experiments. The department already had a standing tradition in laboratory experiments and in recent years researchers from various fields in the department (e.g. industrial organisation, labour economics, non-linear dynamic systems, personnel economics, law and economics, finance) had found their way to the laboratory. Nevertheless, to start with experimental research is not that easy. One needs to acquire practical knowledge and abilities, and one needs funds (e.g. to pay participants of experiments). The Research Priority Area Behavioural Economics helps by providing funds and dissemination of knowledge. In internal seminars researchers comment on each other’s plans (compulsory for funding), a workshop is organised annually and international visits from or to co-authors are financed.

In 2011, the Research Priority Areas of the University of Amsterdam were evaluated and in that context a bibliometric citation analysis was carried out by CWTS. The analysis concerned all publications in the Web of Science database over the period 2000-2010 of the researchers involved in the Research Priority Areas. Behavioural Economics received a positive evaluation. The average normalized number of citations of the publications (MNCS) was 1,72, which means that on average the publications of Behavioural Economics had been cited 1,72 as frequently as would be expected based on the field, publication year, and document type. The proportion of publications belonging to the top 10% most frequently cited publications in the field (PPtop10%) was twice as much as was as expected with a score of 20%.

4.2 ORGANISATION

In 2015 the Research Priority area succeeded in hiring Shaul Shalvi. Shalvi studies the mechanisms at the roots of corruption. His main research interest is in particular in behavioral ethics. In the next years his work is financed by an ERC starter’s grant that started in September 2015.

After its success in 2014, when the Research Priority Area Behavioural Economics succeeded in acquiring Additional Funding of 301K euro per year on the basis of the grant proposal “Communication by Action and Market Design”, it was again successful in 2015, and acquired an ongoing grant similar in size on the basis of the proposal “Complex Human System Labs”. This grant makes it possible to construct a new large scale laboratory infrastructure that will effectively allow the researchers to run large scale experiments and it allows to hire a top-researcher who will contribute to the success of the new Lab.
CHAPTER 5: RESEARCH FOCAL AREA: RISK AND MACRO FINANCE

5.1 ACTIVITIES

The Amsterdam Center of Excellence in Risk and Macro Finance (ACRM) hosting the activities of the Risk and Macro Finance research focal area of the University of Amsterdam's Faculty of Economics and Business, and directed by Prof. Roger Laeven, Prof. Enrico Perotti and Prof. Sweder van Wijnbergen, has seen a very successful second year.

Its main activities and successes in 2015 include:

1. ACRM has organized two flagship events:
   o A policy oriented meeting on insurance regulation and market-consistent valuation (November 6, 2015), featuring distinguished academics, practitioners, regulators and policymakers.

2. ACRM has organized the Risk and Macro Finance seminar series on academic top-level research overlapping the areas of macroeconomics, finance and risk management. Featured speakers include top academics from Columbia, ECB, INSEAD, LSE, NY FED, NYU, Oxford and Princeton.

3. ACRM has successfully completed its first PhD selection process and will be funding one ACRM PhD position per September 2016.

4. ACRM has awarded 10 Junior Risk and Macro Finance Fellowships 2015-2016 to junior researchers representing the full width of Risk and Macro Finance research at the FEB and its two schools.

5. ACRM has published the second volume of the Risk and Macro Finance Working Paper series.

6. In 2015, the ACRM directors got their ACRM research accepted in top notch journals, such as the Journal of Financial Economics, the Journal of Monetary Economics, the Journal of Environmental Economics and Management, Insurance: Mathematics and Economics, and the Annals of Statistics. ACRM publications will be collected in the ACRM Publication Database.

7. Prof. Laeven was nominated for most promising researcher under age 40 across all disciplines by The New Scientist.

8. In his Camdessus Lecture at the IMF on May 14, 2015, Mario Draghi, president of the European Central Bank (ECB), used the research published by ACRM co-director Prof. van Wijnbergen and ACRM junior Risk and Macro Finance fellow Dr. Homar.

9. ACRM co-director Prof. Laeven was selected as academic member of the Insurance and Reinsurance Stakeholder Group (IRSG) advisory body of the European Insurance and Occupational Pensions Authority (EIOPA). This body facilitates consultations between stakeholders and EIOPA’s Management Board.

10. Prof. van Wijnbergen was appointed external academic advisor to the Dutch Central Bank (DNB).
11. Prof. Perotti served as a 2015 Duisenberg Fellow to lecture on research on financial stability and advise on prudential policy, both at the European Central Bank (ECB) and the Single Supervisory Mechanism (SSM).

12. Junior Risk and Macro Finance Fellows Lucyna Górnicka and Timotej Homar, both advised by Prof. Van Wijnbergen, were placed at the IMF and the ECB, respectively.

5.2 BACKGROUND

Economics and Business at the University of Amsterdam has defined Risk and Macro Finance as a key research theme (“research focal area”), seen as a convergence and integration of methodologies to develop a more insightful view of recessions, financial crises and systemic risk. Such cross-disciplinary research is much-needed to adequately respond to some of the most fundamental economic problems of our times: (i) endogenous risk creation and interconnectedness of financial markets and institutions; (ii) the relation between government finances and the financial sector; (iii) the financing of long term guarantees in insurance and pensions; and (iv) the regulation of the broader financial sector. The initiative is the first of its kind in Europe. It pursues top-quality academic research, but also aims at facilitating policy and practice. The initiative is broadly supported by the Amsterdam Business School and the Amsterdam School of Economics.

ACRM’s website [http://www.acrm.uva.nl](http://www.acrm.uva.nl) contains further details about its activities.

5.3 PUBLICATIONS

**Forthcoming publications**


**Publications**


ACRM working papers

Policy publications
B

THE RESEARCH PROGRAMMES
6. UvA-ECONOMETRICS

Programme director: Prof. dr. H.P. Boswijk & Dr. M.J.G. Bun
METIS-code: uva/feb/ase/uva-e
JEL-classification: C1, C2, C3, C4, C5
Starting date: 1997
Website: www.ase.uva.nl/uva-econometrics

6.1 MEMBERS OF THE RESEARCH GROUP AND RESEARCH IN FTES

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| Total 3rd flow of funds | 0,00 | 0,00 | 0,00 |
| Total 1st f.o.f. excl. PhD's | 1,87 | 1,40 | 2,25 |
| Total 1st-3rd flow of funds | 6,14 | 5,93 | 5,38 |
| PhD students | 3,47 | 3,73 | 2,33 |

6.2 PROGRAMME DESIGN

Objective

The UvA-Econometrics programme aims at improving the accuracy, efficiency and robustness of econometric inference methods.
Motivation
Empirical economic data are usually not obtained from markets or agents in static equilibrium. Typically they provide a random and disturbed indication at a certain moment in time, or over a relatively short period, of dynamic jointly dependent adjustment processes. Also they usually concern just a few aspects of the underlying complex (non-)linear economic system. The various projects united in this programme all try to gear statistical techniques to the typical characteristics of empirical economic data. The main interest is the development of accurate and efficient econometric inference to test economic theory, to support decision making and for policy evaluation.

Techniques
Both analytic and experimental methods are used in this programme to improve understanding of the available statistical inference techniques, and to develop alternatives. The analytic aspects often involve the derivation of asymptotic distributions, the approximation of finite sample moments or distribution functions, the elimination of nuisance parameters etc. In computer simulations of completely specified systems the existing standard procedures and the newly developed techniques are then compared and evaluated experimentally. Occasionally the alternative techniques as such are of an experimental nature, because they involve computer-intensive methods (bootstrap resampling, randomization techniques, simulation-based inference). Actual data often serve to illustrate the empirical relevance and practical usefulness of the theoretical findings, but at times empirical issues are the prime motivation of the research projects engaged in.

Applications
The fundamental problems of econometrics indicated above are studied in interplay with actual applied econometric research. These applications come from economics, finance or business. We do not intend to provide an exhaustive overview of specific applications, but UvA-Econometrics is active in labour economics (wage determination, job mobility and allocation, returns to schooling), development economics (exports and productivity, infant mortality), health economics (organization of health care, intelligence and mortality), finance (measurement and modelling of stock return volatility, option pricing, credit risk, risk premia), international economics (effects of trade policy and economic integration), monetary economics (demand for money, term structure of interest rates) and business (marketing activities). The economic behaviour of individual agents is analysed on the basis of observational or experimental data of various dimensions (cross-section, time series or panel data).

Sub-themes
Within the general programme described above, the following sub-themes can be distinguished:

Econometric Theory
Within this sub-theme, analytical finite sample approximations, simulation-based inference, inference based on IV/GMM with weak instruments, conditional inference, methods from differential geometry as well as semi- and non-parametric methods are studied for and applied in models that may be dynamic, simultaneous or non-linear.

Microeconometrics
Econometric analyses within this sub-theme often entail a quantitative assessment of the effectiveness of a policy intervention. Outside controlled experiments policies are usually endogenous. Unbiased assessment of effectiveness requires adequate modelling of the causality, handling of any unobserved heterogeneity and understanding of the identification issues. Applications within this sub-theme often include panel data, which calls for the development of accurate inference methods for dynamic panel data models.
Financial Econometrics

Topics are ARCH and stochastic volatility models, the econometrics of the CAPM and factor models, econometric models of the term structure of interest rates, econometric analysis of credit risk, the analysis of option data and implied volatilities, and the analysis of high-frequency data and realized volatility. Applications within this sub-theme often include non-stationary data. This leads to the analysis of unit roots, cointegration and error correction models, the role of (weak) exogeneity in such models and structural change.

6.3 PROGRAMME EVALUATION

The output of the research group is not well spread over its members since it primarily results from a smaller sub group. We hope that the arrival of Frank Kleiberen (who started January 1-st 2015 funded by a three year fellowship of the Amsterdam Academic Alliance) helps to increase the overall productivity. It has already helped to recruit new PhD students. We also expect that the new tenure track appointment increases the research output.

Almost weekly, a Friday afternoon (mostly external) seminar is organised at (and funded by) the Tinbergen Institute, jointly with econometricians from VU University Amsterdam. It is an active seminar series, with high-quality international speakers. In addition, occasionally an internal informal workshop is held on Thursdays at lunch time, where research projects which are still in an early stage are discussed. These meetings stimulate the coherence of the research programme and should lead to more joint research projects; however, their frequency has recently declined, which is a point for concern. All activities and achievements of UvA-Econometrics are communicated via its web-site (www.ase.uva.nl/uva-econometrics).

It is the ambition of UvA-Econometrics to gain further recognition as one of the major strongholds in theoretical econometrics. The activities and achievements over the last decade (number and quality of publications, presentations at and invitations for international meetings, responsibilities regarding journals and conferences, hosting of visiting scholars, exposure at peer institutions, etc.) have been substantial, but leave room for further qualitative and quantitative improvements. In particular, the continued high teaching loads in the group have had a negative impact on the research output of some of its members, and consequently on the research time available to the programme. Most individual members of UvA-Econometrics continue to operate in intensive formal and informal national and international networks. As part of a strategy for improvement of research output, UvA-Econometrics continues to aim at strengthening its ties with other faculty research programmes, in the form of joint applied research projects in micro-econometrics and financial econometrics.

In 2015 the number of PhD students has decreased due to the graduation of two of them (Arturas Juodis and Milan Pleus). Arturas Juodis became a tenure track assistant professor at the University of Groningen which shows that UvA-econometrics generates high quality PhD students. No new PhD students started in 2015. Since two more students (Andrew Pua and Yang Liu) will graduate in 2016 there is a need for new PhD students. Fortunately, one will start in 2016 but there is room for more.

The above evaluation can be summarized in the following SWOT analysis regarding the activities and current position of UvA-Econometrics:

**Strengths:** good reputation; a relatively steady stream of publications; quality of human capital; expertise in a broad range of cutting edge areas of econometric (and statistical) theory; recently improved prospects regarding external funding; coherence of and atmosphere within the group; active seminar and workshop series; exposure via own discussion paper series; tight but appropriate facilities regarding computing and travel.

**Weaknesses:** relatively few links with other units of the FEB outside the quantitative economics research groups; only a small number of its members regularly publish in A-journals.
Opportunities: recently developed MPhil programme and Fast Track in Econometrics within the Tinbergen Institute; developing a more applied profile within ASE and with the ABS.

Threats: decreased research input due to small number of faculty members that publish regularly. This has led to a high teaching load for some senior faculty members which leaves them little room to conduct research.

6.4 RESOURCES AND FUNDING

The current ASE-RI facilities allow the active researchers (and also first and second year PhD students) to attend at least one international conference per year; in practice more is possible, so the research group does not experience binding constraints in this respect.

In recent years, UvA-Econometrics has been quite successful in obtaining external funding for research activities. To maintain a good research environment and attract more PhD students, it is important that UvA-Econometrics remains successful in obtaining external funding.

6.5 OUTPUT

**Key publications**


**Forthcoming**


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**Article in journal - refereed**


**Book chapter - refereed**


**Working- or discussion paper**


**UvA Dissertation – internally prepared**


**Conference organiser**


**Editorship**


**Keynote/invited talk**


**Other lectures**


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Van Garderen, K.J. (2015, 26 November). “Multimodality Adjusted p-star Formula and Confidence Regions”. Special Granger Centre Seminar, University of Nottingham, UK.


Membership academies
Bun, M.J.G. PhD committee member Zhuojiong Gan (Tilburg University), Charles Saunders (Carleton University) and Koen Bel (Erasmus University Rotterdam).
Kiviet, J.F. (2015). Elected member of the Royal Netherlands Academy of Arts and Sciences
Kleibergen, F. (2015, May 7). Member PhD Commitee Philipp Ketz. Brown University. Providence, USA; Purevdorj Tuvaandorj, McGill University, Montreal, Canada.

Relevant position
7. EQUILIBRIUM, EXPECTATIONS & DYNAMICS

Programme director: Prof. dr. C.H. Hommes & dr. ir. F.O.O. Wagener
Metis-code: uva/feb/ase/eed
JEL-Classification: C, D, E6
Starting date: 1998
Website: http://cendef.uva.nl

7.1 MEMBERS OF THE RESEARCH GROUP AND RESEARCH IN FTES

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7.2 PROGRAMME DESIGN

The objective of the programme is the development of (mathematical) economic theory, focussing on the understanding of economic processes. The programme aims at developing models of economic behaviour in different areas of economics, including microeconomics, macroeconomics and finance. Emphasis is given to behavioural models of dynamic market phenomena.

The research group employs a multi-disciplinary approach. The models are studied both from a theoretical and a computational perspective, and the validity of the models is tested in laboratory experiments with human subjects as well as empirically using real data. The NWO-Vernieuwingsimpuls Information Flows in Financial Markets, the EU STREP project Financial Markets and Complexity and the NWO-VIDI programme *Structural Stability in Economic Dynamics* are part of the research programme.

The programme can be subdivided into five closely related and interacting research themes:

*Equilibrium theory*
Individual optimising behaviour of economic agents generates aggregate supply and demand of commodities, as a function of prices and individual expectations. In equilibrium supply and demand are equal. Many types of equilibrium can be studied: partial versus general, competitive versus monopolistic, dynamic versus static, temporary equilibrium, single, representative agent as well as heterogeneous, interacting agents equilibria. The existence of equilibria is studied, as well as conditions for stability or instability of dynamic adjustment processes.

*Game theory & Industrial organisation*
This part of the programme focuses on modelling strategic behaviour of economic agents in markets with imperfect competition, such as duopoly and oligopoly. Equilibria in non-cooperative games (e.g. duopoly, oligopoly) as well as cooperative games (costs sharing, general equilibrium) are studied. Evolutionary games with heterogeneous, boundedly rational strategies competing against each other are also studied.

*Expectations and learning*
Bounded rationality models of expectation formation and learning schemes are becoming a serious alternative to rational expectations, which was the dominating paradigm until quite recently. The fully rational representative agent is replaced by a large heterogeneous population of boundedly rational interacting agents, who form expectations based upon time series observations and update their
forecasting rules according to new observations and new information about market fundamentals. Conditions under which learning schemes converge to rational expectations or to a boundedly rational expectations equilibrium with excess volatility are investigated. Formation of expectations is studied in theory, in laboratory experiments with human subjects and in real markets.

**Nonlinear economic dynamics**
This part of the programme focuses on nonlinear complexity models of dynamic market phenomena. Are market fluctuations mainly caused by random exogenous shocks, or can endogenous nonlinear economic laws of motion explain (a significant part of) the fluctuations? Various deterministic and stochastic economic models are studied theoretically, computationally as well as empirically, attempting to explain the most important stylised facts observed in real economic and financial time series. Emphasis is given to complex adaptive systems where markets consist of a large population of agents selecting simple strategies according to their relative success in the recent past. In these evolutionary adaptive systems endogenous variables such as prices and agents’ beliefs co-evolve over time.

**Dynamic optimisation**
Emphasis is given to dynamic optimisation problems in environmental economics, characterised by a conflict between economic benefits and ecological costs. Tools from nonlinear dynamics and bifurcation theory are employed to investigate non-convex dynamic optimisation problems. The main thrust is a structural analysis, that is, investigation of the global solution structure of dynamic optimisation problems and dynamic games. The qualitative changes of these solutions are studied under changes of the parameters. Geometrical methods, like bifurcation theory, normal form theory and perturbation theory, as well as numerical methods yield insights that hold not just at isolated parameter values, but for the complete parameter set.

### 7.3 PROGRAMME EVALUATION

This programme grew out of a mathematical economics programme *Equilibrium and Dynamics*, led by Weddepohl, which was quite small until the mid nineties. The group was extended considerably at the end of 1998, thanks to an NWO-MaG Pioneer grant awarded to Hommes, to set up the Center for Nonlinear Dynamics in Economics and Finance (CeNDEF). At that time the programme changed from a small specialized mathematical economics programme into a multi-disciplinary research programme with an emphasis on economic theory, but also running laboratory experiments (in cooperation with Joep Sonnemans at CREED) to test behavioural theories and doing empirical work as well (in cooperation with Peter Boswijk at UvA-Econometrics), in particular nonlinear time series analysis, to test behavioural models empirically. Weddepohl retired in 2002 while Furth and Koster joined the group in the same year; from that point onwards, game theory has been included as one of the research themes of the programme. At the end of 2003, the CeNDEF postdocs Diks, Tuinstra and Wagener obtained tenured positions, ensuring the continuation of the research program. In 2009 the research programme was ranked as one of the three top programmes at the FEB by the VSNU “Visitatiecommissie” (Quality 4.5, Productivity 4.5, Relevance 5, Viability 5). From the report of the committee: “The group (...) is developing very fruitful projects on highly topical current issues.”

The publication record of the year 2015 is very good. The output was 9 articles in international refereed journals, amongst which publications in Games and Economics Behavior, Journal of Economic Dynamics and Control and Mathematics of Operations Research. There were two PhD students, Dávid Kopányi and Juanxi Wang, that had a (co-)supervisor from the group, who defended their thesis successfully.

The programme is internationally established, as is shown by excellent citation statistics (e.g. according to the Science Citation Index (SCI) in 2015 almost 500 citations of published work by group members), many invited and several keynote lectures at international seminars, conferences and workshops by various members of the research group. In the IDEAS/RePEc ranking of Top 20% institutes (http://ideas.repec.org/top/top.netherlands.html), CeNDEF ranks as number 14, one position
down from last year. This ranking contains faculties of economics and departments; among the small institutes of the order of a research group (up to 16 researchers) CeNDEF ranks 4th on the list.

In 2015, Anita Kopányi-Peuker joined the group as postdoc in the EU Horizon 2020 project IBSEN, and Gavin Goy, Myrna Hennequin and Gregor Boehl as PhD students.

The evaluation can be summarized in the following **SWOT analysis** of the CeNDEF activities.

**Strengths**: international reputation as an excellent research group on nonlinear dynamics and complexity applications in economics and finance, high scientific impact (e.g., with both having been cited about 500 times (Web of Science), Brock and Hommes (*Econometrica* 1997), and Brock and Hommes (*JEDC* 1998), are two of the best cited journal articles co-authored by a Dutch economist), regular international visitors, active seminars and international workshops, own working paper series, frequently visited website, good facilities for computing and travel.

**Weaknesses**: relatively few publications in top mainstream journals, where multi-disciplinary work and non-mainstream approach such as agent-based modelling and complexity modelling are far from being well accepted; the number of links with practitioners and policy makers has been relatively low, but is now increasing.

**Opportunities**: development of UvA Graduate School in Economics; application of group-specific know-how to core economic problems, to demonstrate in this way the value of the programme's characteristic approach; developing more policy oriented research, e.g. through a new project on heterogeneous expectations in macro economics and monetary policy; for example, the NWO-complexity project is a research project jointly with researchers and policy makers at DNB.

**Threats**: A multidisciplinary group is likely to be handicapped when evaluated in a mono-disciplinary environment; and the complexity of the tools used may turn out to be an impediment at disseminating the research approach.

### 7.4 RESOURCES AND FUNDING

The budget received from ASE-RI every year only covers on average one conference per researcher per year and some of the costs for the Economics Colloquia; another budget of the Tinbergen Institute covers the costs of joint research seminars *Cooperative Behaviour, Strategic Interaction and Complex Systems - CSC* together with the VU mathematical economics group.

The group has been very successful in obtaining additional external funding. Joep Lustenhouwer is a PhD student since September 2014 funded by a NWO Talent project Monetary and Fiscal Policy under Bounded Rationality and Heterogeneous Expectations CeNDEF is part of several European consortia that obtained grants: the *Macro-Risk Assessment and StabilizationPolicies with New Early Warning Signals (RASTANEWS)*, the EU COST action IS1104 “The EU in the new complex geography of economic systems: models, tools and policy evaluation”, and two INET projects, “Coordination of Expectations”, led by Roger Guesnerie and “Heterogeneous Expectations and Financial Crises”, led by Cars Hommes. The EU FP7-SHS Collaborative project (with 12 European partners) "Integrated Macro-Financial Modelling for Robust Policy Design (MACFINROBODS) " started in May 2014 is coordinated by Cars Hommes for UvA. A new EU Horizon 2020 project Bridging the gap: from Individual Behaviour to the Socio-technical MaN (IBSEN) has started in September 2015. Anita Kopányi-Peuker has been appointed as postdoc in this project. In May 2014 Cars Hommes was awarded the *Distinguished Lorentz Fellowship 2014/2015 of the Netherlands Institute of Advanced Studies (NIAS).*

34
Key publications

Forthcoming

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**Article in journal - professional**


**Working- or discussion paper**


**UvA Dissertation – internally prepared**


**UvA Dissertation – externally prepared**


**Conference organiser**


**Recognition**


Tuinstra, J. (2011). Team leader for the Netherlands of the Open Research Area grant (nr 464-15-143, budget 298,196 Euro for the Dutch Team) for project titled “Behavioral and Experimental Analyses in Macro-Finance”

**Book review**


**Keynote/invited talk**


Assenza, T. (2015, March 31). Individual Expectations and Aggregate Macro Behavior, Research seminar series at the Sant' Anna School of Economics, Pisa


Leij, M.J. van der (2015, January 19). Do Correlated Markets Have More Volatility Spillovers? Invited seminar (host: Dr. Sophie Béreau), CORE, Université Catholique de Louvain, Louvain-la-Neuve, Belgium.

Leij, M.J. van der (2015, April 2). The Formation of a Core-Periphery Structure in Heterogeneous Financial Networks. Invited seminar (host: Prof. Yann Bramoulle), GREQAM, Université Aix-Marseille, Marseille, France.

Leij, M.J. van der (2015, April 8). The Formation of a Core-Periphery Structure in Heterogeneous Financial Networks. Invited seminar (host: Dr. Paolo Pin), University of Siena, Siena, Italy.


Salle, I. (2015, October 29). Monetary and Fiscal Policy Design at the ZLB: evidence from the lab, at Macro-METI Seminar, Erasmus University, Rotterdam, NL.


**Other lectures**


Wang, H. (2015, July). A patent race with knowledge accumulation and product market. EDEEM summer meeting, University of Venice, Venice, Italy.

Membership academies


Assenza, T. (2015). Member of the Scientific board of the PhD program of the Graduate School in Public Economics (DEFAP), Università Cattolica del Sacro Cuore


**Editorship**


**Relevant position**


Tuinstra, J. (November 2015). Visiting Professor, University of Technology Sydney, Sydney, Australia


8. ACTUARIAL SCIENCE & MATHEMATICAL FINANCE

Programme director: Prof. dr. ir. M.H. Vellekoop
METIS code: uva/feb/ase/act
JEL-classification: C, G2
Starting date: 1989
Website: www.aseri.uva.nl/act

8.1 MEMBERS OF THE RESEARCH GROUP AND RESEARCH IN FTES

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Total 1st-3rd flow of funds 5,59 6,22 6,88
PhD students 1,92 3,39 3,39

8.2 PROGRAMME DESIGN

The programme concerns both fundamental and applied research in the field of financial institutions. It is mainly directed at insurance companies (for life, non-life, pension and social insurance), but also at banks and other financial intermediaries. Research is performed on the mathematical modeling, estimation, appraisal and control of financial risks of such financial institutions under complete and incomplete information and for complete and incomplete markets. For long term insurance contracts, especially pensions, saving by insurance is significant, which leads to the study of optimal investment and consumption problems. An increasingly important aspect is the influence of the "risk of longevity" on the policies of life insurance, social insurance and care insurance. Newly reported statistics show that life expectancy continues to rise faster than predicted both in the Netherlands and abroad, and the modeling of this effect and its consequences for life insurance policies and pension contracts therefore remains an important area of investigation. Present-day challenges for non-life insurance contracts include decreasing profit margins, increasing competition and selective behaviour of the insured and of insurance companies. In social insurance, there are specific problems that emerge from the privatisation of social insurance contracts. Apart from studying problems in the separate fields of life, non-life, pension and social insurance, work is also done on the theoretical research subject which concerns the unification of several distinct actuarial theories in these fields, and their connection with stochastic financial mathematics.

Supervision and regulation of insurance companies and pension funds form an important part of the field of actuarial research. Methods for risk measurement and the determination of solvency requirements have come under intensified scrutiny in the wake of the recent financial crisis. The new European regulatory framework Solvency II for insurers and the Dutch FTK regulation for pension funds lead to many important new research questions. The Actuarial Science group therefore works on the further development of actuarial risk theory, in particular the development of new mathematical and economic models in the fields of market-consistent valuation, market-consistent pricing and market-consistent embedded value for insurance portfolios.

Other significant fields of research are the interaction between credibility theory, models for the estimation of unreported claims (IBNR) and actuarial ordering of risks, and their consequences for the determination of insurance premiums (risk classification). Credibility models can be viewed as Generalized Linear Mixed Models, having both random (subject-specific) and fixed effects in the linear predictor. Generalized Linear Models and Generalized Linear Mixed Models can be used for a variety of actuarial statistical problems like survival modelling, graduation, multiple-state models, loss distributions, risk classification, premium rating and claims reserving in non-life-insurance. Other aspects are the homogeneity and heterogeneity of insurance portfolios, the probabilistic and subsidising solidarity imposed on the insured, the voluntary or compulsory character of the insurance, and the auto-selection and anti-selection of those insured.
The growth of the research group Actuarial Science has continued in 2014 with the arrival of a new postdoc, Xiye Yang, and a new PhD student, Yuan Yue. Xiye works on the asymptotic properties of estimators which use high frequency asset price data to estimate continuous and discrete leverage effects in asset returns, and on statistical tests which detect self-excitation in jumps. In this context self-excitation means that a jump in asset prices may increase the probability of a new jump directly afterwards, a phenomenon that could help explain the clustering of jumps which is observed in certain financial time series. Yuan will work on fraud detection in insurance claims in cooperation with the PhD project’s sponsor, Van Ameyde International bv. Before taking up this project in insurance she has successfully worked on models for pension funds as well, as witnessed by the prize that was awarded to her by Netspar, the Network for Studies on Pensions, Ageing and Retirement. She received this prize for the MSc thesis *Measuring the Cost of Regulatory Funding Ratio Constraints for Defined Benefit Pension Plans* which she wrote as the result of an internship at APG.

Another prize was awarded to Roger Laeven and his co-authors from the University of Tilburg, Servaas van Bilsen and Theo Nijman. They received the prestigious Australian Securities Exchange (ASX) Best Quantitative Paper Prize for their paper 'Consumption and Portfolio Choice under Loss Aversion and Endogenous Updating of the Reference Level' at the Australasian Banking and Finance Conference which was held in December in Sydney.

Two members of the group, Katrien Antonio and Michel Vellekoop, participated in a large applied research project which led to new stochastic mortality models for the Netherlands and Belgium which are now the default choice for actuarial calculations in life insurance contracts for both countries. Research was done in cooperation with the Dutch Actuarial Society (het Koninklijk Actuarieel Genootschap), the Belgian Actuarial Society (IA|BE), several representatives from Dutch insurance companies and pension funds and colleagues from the University of Tilburg.

International contacts have been strengthened during research visits at the School of Mathematics, Statistics & Operations Research at Victoria University of Wellington (Umut Can) and the Business School of Imperial College in London (Tim Boonen). In the Netherlands we have organised working group meetings for the Netspar research theme *Risk Management for Funded Pension Systems* and another successful installment of the by now traditional autumn symposium for the Dutch Association of Insurers (het Verbond van Verzekeraars). This year, the event was organized jointly with ACRM (the Amsterdam Center of Excellence in Risk and Macro Finance), the new research priority area of the faculty. The group actively participates in this center, which aims to develop more insight into recessions, financial crises and systemic risk by using integrated methodologies from different disciplines. During a successful ACRM workshop *Micro Foundations for Macro Finance* in August, more than 30 people participated in a series of structured brainstorm session, seeking the frontiers of the current methodological debate on micro models for financial intermediaries.

**Strengths:** New tenure tracks and a number of part-time positions have strengthened the research profile of the group. We therefore expect to continue to play an important role in the national and international research networks which study problems in actuarial science and mathematical finance.

**Weaknesses:** The group has many junior researchers and only a few senior researchers and there are relatively many part-time positions in the group.

**Opportunities:** Research in the group comprises some traditional actuarial subjects but also looks at the interplay between finance and insurance which has received increased attention since the beginning of the financial crisis. This allows the group to play a growing role in *Macro Finance Risk*, the new research priority area in the faculty.
**Threats:** The increased number of Master students for both Executive and regular programmes has led to an increase in the number of theses that have to be supervised by the staff. This leads to increasing pressure on the time available for research.

### 8.4 RESOURCES AND FUNDING

Below are several Research grants awarded to members of the group:

- **01/2012 – 01/2015.** Chair ‘Verzekeringseconomie’ sponsored by Verbond van Verzekeraars (Dutch Association of Insurers), €400.000.
- **01/2012 – 01/2015.** Sponsored PhD Research Grant, APG (Position of Zhenzhen Fan, extended).
- **2013.** Sponsored PhD Research Grant, Van Ameyde (Position of Yuan Yue).
- **2013.** EDEEM PhD Research Grant, jointly with Universidade Nova de Lisboa (Position of Marko Petrov).

### 8.5 OUTPUT

#### Key publications


#### Forthcoming

Publications in numbers

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Article in journal – refereed


Article in journal – professional

Book / book chapter – refereed

Report – professional

Working- or discussion paper

UvA dissertation – internally prepared

Conference organiser
Antonio K. and Vellekoop, M.H. (2015). Member of the jury of the Econometric Game, the world championship of Econometrics, Amsterdam.

Recognition
Laeven, Roger J. A.: Van Ameyde-UvA PhD Research Grant: Economic and Statistical Aspects of Insurance Fraud. [EUR 150,000]
Laeven, Roger J. A.: APG-UvA PhD Research Grant: Contagion and Portfolio Choice. [EUR 103,000]
Laeven, Roger J. A.: Sponsorship Chair of Risk and Insurance by the Dutch Association of Insurers. [EUR 480,000]
Vellekoop, M.H.: Netspar Theme Grant 2013-2016 (project leader). [EUR 500,000]
Vellekoop, M.H.: EDEEM Research Grant for PhD student Marko Petrov (jointly with Universidade Nova de Lisboa) . [± EUR 150,000]

Media appearance
Laeven, Roger J. A.: Interview in De Actuaris on Science and Practice, March 2015.
Laeven, Roger J. A.: Interview in Eureka on Solvency II, April 2015.

**Keynote/invited talk**
**Other lectures**


Lalu, A. (2015, June 13). Asset returns with self-exciting jumps: option pricing and estimation with a continuum of moments. Poster presentation at Netherlands Econometrics Study Group Meeting, Maastricht University, Maastricht, NL.


**Membership academies**

Laeven, Roger J. A.: Promotor (with Prof. H. P. Boswijk) of Xiye Yang, University of Amsterdam, June 16, 2015.


Vellekoop, M.H.: Membership Phd Committee of Sally Chen (June 22, 2015, University of Maastricht, promotores: prof. A. Pelsser and prof. P, Schotman)

Vellekoop, M.H. Membership Phd Committee of Xiye Yang (June 16, 2015, University of Amsterdam, promotores: prof. H.P. Boswijk and prof. R. Laeven )

Vellekoop, M.H. Membership Phd Committee of Ben Stassen (KU Leuven, August 31, 2015; promotor: prof. J. Dhaene)

**Editorship**


Laeven, Roger J.A.: *Dependence Modelling*, Associate Editor.
Relevant position
Laeven, Roger J. A.: Visiting Professor at the Bendheim Center for Finance, Princeton University, US, August 2015.
Laeven, Roger J. A.: Co-Director of the Research Focal Area of Risk and Macro Finance at the University of Amsterdam.
Laeven, Roger J. A.: Fellow and Director of the Insurance Supervision Research Program of the Amsterdam Centre for Insurance Studies (ACIS).
Laeven, Roger J. A.: Extramural Fellow of CentER.
9. MINT - MACRO AND INTERNATIONAL ECONOMICS

Programme director: Prof. dr. F.J.G.M. Klaassen
METIS-code: uva/feb/ase/mint
JEL-classification: E, F, H
Starting date: 2001
Website: www.aseri.uva.nl/mint

9.1 MEMBERS OF THE RESEARCH GROUP AND RESEARCH IN FTES

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Westervout, E. | dr. | ud | 0,08 | 0,25 | 0,25 | 1
Wijnbergen, S.J.G. | prof. dr. | hgl | 0,49 | 0,50 | 0,50 | 1
Zaheer, S. | drs. | guest | 0,00 | - | - | 1
Zhao, L. | msc. | phd | 0,80 | 0,80 | 0,53 | 3
Zhuo, R. | msc. | phd | - | - | 0,20 | 1
Zouain Pedron, M. | dr. | ud | - | - | 0,21 | 1

| Total 1st flow of funds | 4,31 | 7,13 | 9,14 |
| Total 2nd flow of funds | 2,37 | 2,25 | 2,18 |
| Total 3rd flow of funds | 2,59 | 2,95 | 2,68 |
| Total 1st f.o.f. excl. PhD's | 3,64 | 3,92 | 4,14 |
| Total 1st-3rd flow of funds | 9,27 | 12,33 | 14,00 |
| PhD students | 4,61 | 8,46 | 8,46 |

### 9.2 PROGRAMME DESIGN

#### Objective
The programme uses empirical and theoretical methods to analyse important economic issues in the areas of macroeconomics and international economics. Special emphasis is given to the evaluation of existing fiscal and monetary policies and the question how these policies can be improved upon. Dissemination of the results takes place mainly via international, refereed scientific journals, but also via more policy-oriented outlets.

#### Motivation
The economic growth that a country experiences not only has direct effects on the available resources, it can also have important indirect effects through, for example, the stability of the social and political environment. Similarly, the business cycle fluctuations countries face can have far-reaching consequences to many, especially if these fluctuations mainly fall on subgroups within the population. It is therefore crucial to thoroughly understand the characteristics of economic developments, the factors behind them, and to what extent and how governments can affect these developments. The recent international sovereign debt crisis and discussions on the sustainability of pension systems exemplify this.

#### Themes
Major international economic developments and policy debates generate a continuous stream of research ideas for our group. The resulting projects are often intertwined, but we choose to categorize them into the following (interrelated) themes. Only a selection of all projects will be discussed.

*Fiscal policy and sovereign debt*
Fiscal policy is a crucial aspect of macroeconomics. Given that government expenditures are a substantial fraction of GDP, they play an important role in welfare redistribution, and financing these expenditures through debt and taxes is likely to have important effects on, for example, financial markets, labour force participation, and investment. Roel Beetsma, Oana Furtuna, and Massimo Giuliodori find that fiscal consolidations lower consumer confidence. If confidence is a concern and consolidation is unavoidable, spending-based measures seem preferable. Slump periods are not
necessarily bad moments for such measures. Their paper was the basis of an article in the Wall Street Journal, as the paper largely backs Europe’s austerity strategy. Coen Teulings studies optimal fiscal policy in the aftermath of a financial crisis. Fiscal policy is a matter of timing: when to do the inevitable austerity when a crisis hits the economy. Roel Beetsma and Massimo Giuliodori examine the impact of news, obtained from the Eurointelligence newsflash, on Eurozone sovereign yields. More news decreases the covariance of distressed countries’ yields with German bond yields, suggesting a flight-to-quality effect. Bond purchases by the ECB under its Securities Markets Program (SMP) mitigate this. Christiaan van der Kwaak and Sweder van Wijnbergen study the intermingling of financial crises and sovereign default risk. The recent Eurozone crisis has shown the interconnection between problems in the financial sector, which can start a recession, and fiscal problems, which are exacerbated by a recession and may complicate financial bail outs necessary to resolve the initial financial sector problems.

Financial fragility and macroeconomics
This theme was also stimulated by the recent crises, showing the interaction between banking distress, fiscal policy to mitigate financial crisis, public debt, sovereign risk, international spill overs, and banking supervision. Stephanie Chan and Sweder van Wijnbergen study contingent convertible capital (CoCos), which are debt instruments issued by banks that can be written off or converted to equity when the issuer’s equity ratio falls below a certain level. Contrary to popular opinion, they argue that CoCo conversion may trigger depositor bank runs. This is important, because Basel III Additional Tier 1 capital is comprised mainly of instruments that sound like CoCos. Egle Jakucionyte and Sweder van Wijnbergen study how depreciations of currencies in Eastern Europe in October 2008, where the private sector had borrowed heavily in foreign currency, has created debt overhang, and they find this a potential reason for the prolonged recession. Christian van der Kwaak and Sweder van Wijnbergen consider the Basel III rules, in which commercial banks are required to abide by higher capital requirements, and they investigate the impact on lending by commercial banks to firms. Aerdt Houben aims to establish the effectiveness of macro-prudential policies across advanced and emerging economies. Effectiveness is assessed on the basis of the impact on broad credit aggregates as well as on substitution effects from bank to non-bank credit.

Monetary economics and policy
Monetary policy is used throughout the world to accomplish important macroeconomic objectives such as price stability, exchange rate stability, and/or full employment. In one project Christian Stoltenberg has studied monetary policy in the United States. Since the mid-1980s the interest-rate policy of the Federal Reserve System has been more aggressive in fighting inflation than in the past. He explains this with a decreasing role of cash in transactions. Kostas Mavromatis studies the macroeconomic effects of central bank forward guidance when agents are boundedly rational and form heterogeneous expectations about the future stance of monetary policy. He finds that such heterogeneity may either delay the recovery of the economy, or make it even faster depending on the degree of heterogeneity and the speed of learning of agents.

Foreign exchange market
The foreign exchange market is the largest financial market in the world. Many countries have managed or fixed exchange rates. Speculative attacks on them can have serious economic and societal consequences. Franc Klaassen, Kostas Mavromatis, and Rui Zhuo study exchange market pressure, that is, the pressure on a currency to depreciate, and the consequences for monetary policy. Dirk Veestraeten examines exchange rate dynamics under the prospect of (potential) future shifts in the regime, such as the move towards a fixed exchange rate. He studies the transition of the pound back to the gold standard in the 1920s and the claim by Keynes that the prospect of such a return at the first instance of hitting the pre-war parity actually fuelled the appreciation back to gold in April 1925 at an overvalued value. Extending the tools of stochastic process switching he can generate precisely the type of overvaluation that Keynes saw.
Pensions
Research projects of Roel Beetsma, Boele Bonthuis, Damiaan Chen, Nicoleta Ciurila, Casper van Ewijk, Ron van Maurik, Ward Romp, Siert Jan Vos, and Ed Westerhout focus on the optimal design of pensions systems, which is heavily debated at present, and their sustainability and the consequences of changing them. For example, Roel Beetsma and Damiaan Chen model the decision of individuals to participate in a collective pension scheme as an (American) option with approximately infinite exercise dates, and they investigate whether the Dutch pension scheme would be stable in the absence of mandatory participation. Roel Beetsma, Ron van Maurik, and Ward Romp have constructed a unique comprehensive dataset of pension reforms for a broad sample of OECD countries since 1970. They find that most pension reform is triggered by problems in the government’s budget, despite the fact that pension reforms are primarily aimed at the longer run. Casper van Ewijk investigates the relation between pension wealth and GDP and concludes that funded pensions contribute to economic growth. In particular, funded pensions create deeper capital markets and make it easier for firms to finance their investment.

Inequality
Several measures of inequality have increased over the past decades, something that has also been communicated by Piketty in his recent book. This, and the fact that the economics profession with the help of computers has been able to tackle ever more complex models with heterogeneous agents makes inequality an increasingly important research theme. Marcelo Pedroni studies how governments should tax capital and labour income. Such taxation reduces inequality, but at the expense of distorting individuals decisions. Ultimately, the optimal taxes must weigh these cost and benefits and he provides a quantitative answer to this question. Christian Stoltenberg and Swapnil Singh study the relationship between income and consumption inequality. They explain why the present workhorse heterogeneous agent models are not able to capture some salient features of the data, and they show how incorporating the extra information individuals have about their future income improves the fit with the data.

Labour economics
Coen Teulings has worked on an extension of his Econometrica paper. An implication of the model in that paper is that the return to seniority is higher in industries with a lot of firm-specific human capital. He derives this implication in his new paper and provides evidence on it. Maja Micevska Scharf and Casper van Ewijk have worked on the effects of Social Security Contributions (SSCs) on earnings, using large administrative panel data in France, Germany, the Netherlands and the UK that have never been used in a cross-country analysis. This is particularly relevant now that many countries have increased, or are considering increasing, SSCs to deal with large budget deficits.

9.3 PROGRAMME EVALUATION
In 2015 MInt published 13 articles in international refereed journals, and there are 9 of such publications forthcoming. In his speech to the annual meeting of the IMF, Draghi, president of the ECB, used the paper by Sweder van Wijnbergen about bank recapitalization and recessions, as Draghi told him in person. The Wall Street Journal wrote an article based on the work by Roel Beetsma, Oana Furtuna, and Massimo Giuliodori. Roel Beetsma was ranked 12 in the ESB Economentop, and Massimo Giuliodori was number 25. There were TV appearances by Franc Klaassen, who was interviewed by CNN about his book Analyzing Wimbledon, and by John Lorié, who gave his view on the international consequences of an economic slowdown in China for Bloomberg and the BBC. We managed to attract Facundo Piguillem from EIEF Rome as an associate professor, funded by an AAA (UvA-VU) fellowship.

The year 2015 experienced some changes in the composition of the group, which grew as a whole. Klaas Knot (president of the Dutch Central Bank, member of the ECB Governing Council, and a Governor of the IMF) joined the group as a professor, and also his colleague Aerdt Houben started as a part-time professor. Gabriele Ciminelli and Rui Zhuo joined from the Tinbergen Institute MPhil
programme. Marcelo Pedroni, after obtaining his PhD from the University of Minnesota, started as a tenure track assistant professor, and Alex Clymo came from LSE to work as a postdoc here. Lucyna Gornicka (supervised by Sweder van Wijnbergen) graduated and accepted a job at the IMF and Lin Zhao started at ABN AMRO. EDEEM student Julien Pinter moved back to Paris. MInt members are currently in contact with external partners to attract additional funding to further strengthen the group. We continue to stimulate the coherence of the group by seminars, joint lunches, drinks, and other activities.

The visibility of the group and the interaction with the academic community have been further enhanced through joint papers, numerous external presentations, conference participations, contacts with renowned universities (including the University of Chicago, London School of Economics, New York University, and University of Oxford), and participation in networks such as Netspar (Casper van Ewijk as director, and Roel Beetsma as chairman of the editorial board). We have a seminar series with well-known speakers, which is organised jointly with the VU University Amsterdam and funded by the Tinbergen Institute. The programme is being noticed by the outside world, for instance reflected by invitations for presentations, contributions to research volumes, referee activities, and the aforementioned non-academic exposure.

There are intensive contacts with policy institutions via visitorships and joint research papers (Bank of Canada, Bank of England, BIS, Central Bank of Ireland, Deutsche Bundesbank, ECB, European Commission, Federal Reserve Bank of Minneapolis, German Ministry of Finance, IMF, OECD, World Bank, WTO, among others), via Preadvieszen for the Koninklijke Vereniging voor de Staathuishoudkunde, via joint positions (Maja Micevska Scharf and Ed Westerhout are also affiliated to the CPB), consultancy work (ECB), seminars, teaching (by employees of the Dutch Central Bank), and memberships of several advisory committees for the Dutch government, such as the Social and Economic Council of the Netherlands (SER). There are also direct contacts with several Dutch ministers and members of parliament, also in parliamentary hearings, on topics such as pension reform, financial sector reform, and general macroeconomic policy.

MInt has collaborations with the business sector, such as APG, Atradius, BNG Vermogensbeheer, Energie Beheer Nederland (EBN), MN, and SEO Economisch Onderzoek. And MInt takes part in public debates on issues such as health care, pension reform and reform of the banking sector. Particularly Roel Beetsma, Casper van Ewijk, Coen Teulings, and Sweder van Wijnbergen are frequently asked by radio and television channels to comment on such topics, and they regularly write for opinion pages of quality newspapers. Sweder van Wijnbergen has set up collaboration with the LUMC hospital and the National Institute for Public Health and the Environment (RIVM) based on his real options research. Another sign of the societal relevance is that many undergraduate students take our courses and write their theses at MInt. Those students also offer ways to disseminate insights from research on key (inter)national events and debates to society.

Strengths: Good and relevant productivity and good (inter)national reputation. High societal relevance: numerous contacts with policy makers, businesses, media, and so on. Strong PhD programme. Solid funding base, not only because we serve many undergraduate students, but also because of our connections to the non-academic world. Coherent group. Good seminar series, jointly with the VU.

Weaknesses: We experience severe competition in the job market, especially from financial and policy institutions. Because of good outside options, it is easy to lose good researchers and not always easy to convince excellent undergraduate students to pursue a PhD.

Opportunities: We are trying to increase external funding so as to enlarge the group. Our expanding contacts with the financial industry generate opportunities in this regard. We have contacts with many BSc and MSc students and alumni, which creates opportunities for the research group, for example through their contacts at policy institutions and businesses. We wish to further exploit our international contacts.
**Threats:** Financial distress at FEB and the resulting faculty reorganisation with vacancy stop have substantially increased the teaching load and administrative duties for MinT researchers. This is particularly relevant due to the number of undergraduate students that we serve. The situation has improved in 2014, but it takes time to increase research output again. Another threat comes from the decreasing funding for research, partly because of the UvA allocation model.

### 9.4 RESOURCES AND FUNDING

To finance our conferences, traveling, seminars, visitors, and so on, we use first-stream resources from the government, funds from the ASE Research Institute, the Tinbergen Institute, and the following other resources. The successful cooperation between Roel Beetsma and MN, one of the largest pension administrators and pension wealth managers in the Netherlands, has continued. The company sponsors the MN Chair in Pension Economics and two PhD students. Moreover, Casper van Ewijk uses a European (NWO-ORA) subsidy on social security contributions and wages (postdoc). His own research time is also to a large extent sponsored by Netspar. Risk and Macro Finance, the FEB acclaimed research focal area with Sweder van Wijnbergen as one of the directors, finances the postdoc position of Alex Clymo. Sweder van Wijnbergen also supervises several PhD students who are financed externally: Lin Zhao has a grant from EBN, a Dutch holding company for national gas interests of the Dutch state; Christiaan van der Kwaak is funded by a three-year NWO Research Talent scholarship. Finally, the cooperation with Atradius Credit Insurance will hopefully lead to funding for a postdoc.

### 9.5 OUTPUT

#### Key publications


#### Forthcoming


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**Publications in numbers**

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**Article in journal – non-refereed**


**Article in journal – professional**


**Article in magazine or newspaper – popular scientific**


**Internet article - professional**


**Book / book chapter – refereed**

Book / book chapter – non-refereed

Book / book chapter – popular

UvA dissertation – internally prepared

UvA dissertation – externally prepared

Working- or discussion paper
Report – professional

Book review – professional

Conference organiser

Recognition
Van Ewijk, C. (2015). Professor by special appointment (“Bijzonder hoogleraar”) on behalf of Instituut Gak, from July 1 2015 at Tilburg University.

Media appearance
Keynote/invited talk
Mavromatis, K. (2015). University of Bath, England (27th May, 2015). I was invited by the department of Economics of the University of Bath to present my working paper coauthored with Cars Hommes and Joep Lustenhouwer, titled ‘Heterogeneous Expectations and Fiscal Consolidations.

Other lectures

Membership academies
Beetsma, R. (2015). Research Fellow, CEPR.
Beetsma, R. (2015). Member of PhD committee Servaes van Bilsen, Tilburg University, November 4.
Relevant position


Vos, S.J. (2015, 4 march). Actuariaatcongres 2015, Member of Commissie van Repliek.


10. HUMAN CAPITAL

Subprogrammes: TIER, AIID, ACAM
Programme director: Prof. dr. E. Plug
METIS code: uva/feb/ase/hum
JEL-classification: I, J, L
Starting date: 2001
Website: www.aseri.uva.nl/hum

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10.2 PROGRAMME DESIGN

Objective

The programme is an empirically driven research programme which relies on microeconometric techniques to study important microeconomic issues in the areas of labour economics, economics of education, family economics, health economics and development economics. Particular emphasis is paid to the identification of causal mechanisms, the analysis of existing policies and policy changes on a variety of microeconomic outcomes, and the design and implementation of experiments to carefully test predictions of microeconomic/behavioral theories and regularities evaluate policy interventions and their microeconomic consequences.

Motivation

Microeconomic models play an important role in understanding individual behavior in many economic areas; that is, predictions taken from microeconomic theories are often used to explain and understand individual economic circumstances, how differences between individuals can possibly account for differences in economic outcomes, and to what extent policies can influence individual economic circumstances. But predictions are not easily verified and possibly false, with huge consequences for (the development of) microeconomic theory, policy and policy design. It is therefore crucial to test predictions of individual economic behavior with careful empirical work, using the most rigorous methods in applied microeconometrics.

Themes

Labour economics

The human capital group is originally a labour orientated economics programme which investigates various aspects of labour economics, including the determinants of labour supply and demand, personnel economics, distribution of income, labour market policies, the intersection between labour markets and demographics. Over the years, however, the labour economics programme has expanded and today it is less clear what is exactly covered by labour economics and what is not. There is substantial overlap with the other themes in the human capital group.

The labour economic topics that are currently addressed in the human capital group include the genetic and environmental origins of economic inequality (Erik Plug, Lennart Ziegler), fertility and labour supply (Erik Plug), the labour market behaviour of sexual minorities (Lydia Geijtenbeek, Thomas Buser, Erik Plug), discrimination in the housing social networks and labour market outcomes (Erik Plug, Lennart Ziegler), teacher productivity, labor supply and large wage gains (Menno Pradhan).

Economics of Education

The economics of education programme is the most active and prominent research area. In it, we study a variety of aspects of the intersection between economics and education: human capital formation, human capital returns, school choice, education and markets, inputs and education production, evaluations of education reforms.

Recent educational topics analyzed in the human capital group include the long-term consequences of class size, and why does it work (Hessel Oosterbeek), the role of school size and school competition (Hessel Oosterbeek), peers and the education production function (Hessel Oosterbeek, Adam Booij), returns to medical school (Nadine Ketel, Hessel Oosterbeek), matching primary school students to secondary schools (Hessel Oosterbeek), information, overconfidence and student achievement (Adam Booij), the consequences of contextual shifts in math education (Diane Hidalgo and Ferry Haan), teacher quality and student achievement (Erik Plug), the effectiveness of excellent programmes in secondary education (Adam Booij, Ferry Haan and Erik Plug), the consequences of Montessori education (Nienke Ruijsch), competitiveness and school choice (Hessel Oosterbeek), drop outs in
lower secondary education (Henriette Maassen van den Brink), student compensation, school resources and student achievement (Noemi Peter), education and cancer risk (Erik Plug).

Family economics
The family economics programme covers empirical research on the economic behaviour of families, including labour supply and other related sources of time use, family formation and dissolution, fertility and child investment decisions, and intergenerational mobility of economic outcomes. The recent availability of large administrative data sources combined with family driven identification strategies (relying on twins, siblings and adoptees) has spurred family research considerably.

Current examples include the origins of gender differences in education (Hessel Oosterbeek, Thomas Buser), gender roles in twins (Noemi Peter), competitiveness and sexual orientation (Thomas Buser, Lydia Geijtenbeek, Erik Plug), fertility, labour supply and marital stability (Erik Plug), assortative mating in dating markets (Erik Plug), parental investments and children (Thomas Buser, Hessel Oosterbeek, Erik Plug), the heritability of cancer (Erik Plug), discrimination against sexual minorities in the housing market (Erik Plug and Lydia Geijtenbeek).

Development economics
The development economics programme focuses on microeconomic issues in low income countries. In particular, the programme tries to uncover the micro-economic causes of poverty and to provide the means and tools to alleviate it.

Recent issues addressed include the evaluation of a variety of school interventions on student outcomes including the introduction of child care centers (Hessel Oosterbeek), the consequences of a cash transfer programme change on a variety of child and adult outcomes (Hessel Oosterbeek, Erik Plug, Thomas Buser), the impact of public health spending (Menno Pradhan), teacher pay and student performance (Menno Pradhan), the evaluation of a preschool intervention in Indonesia (Menno Pradhan).

Organization
Human Capital is an applied microeconomics group, covering various themes of research, with scope for individual research projects, internal and external joint work and cooperation and more formal cooperations.

There are currently three more formally defined research groups: TIER, AIID and ACAM.

TIER (Top Institute for Evidence Based Education Research) is founded in 2008. It aims to contribute to the improvement of the quality of education in the Netherlands by promoting the evidence based approach as a guiding principle in education policy and practice. TIER has been funded through NWO up to early 2015. TIER is currently funded through a large grant from the local municipality of Amsterdam to study the linkage between local education and labor market. This grant will expire in 2020. Henriette Maassen van den Brink is the director of TIER Amsterdam and largely responsible for attracting large external grants. Other TIER staff members include Ilja Cornelisse, Wim Groot and Iryna Rud.

AIID (Amsterdam Institute for International Development) is a joint initiative of the University of Amsterdam and the VU University Amsterdam. AIID is a multidisciplinary research network with a strong focus on generating evidence to improve the design of policies to reduce poverty. Menno Pradhan is one of the AIID researchers who examines aspects of human capital and health through impact evaluations of sector-wide development programmes.

ACAM (Amsterdam Center of Applied Microeconometrics) is also a joint venture of the University of Amsterdam and the VU University Amsterdam. ACAM is founded in 2015 and hosts excellent researchers who are specialized in empirical research in labor economics, health economics, family...
economics, the economics of education and development economics. These researchers all combine academic rigor with policy relevance. Publications of ACAM researchers find their way into top journals (AER, JPE, QJE, RES). Collaboration between UvA and VU members shows through a joint seminar series, joint PhD supervision (Nadin Ketel, Lennart Ziegler), and work-in-progress meetings. ACAM researchers include Erik Plug, Hessel Oosterbeek, Adam Booij and Thomas Buser.

The three institutes (TIER, AIID and ACAM) share the same ambition to perform research at the highest academic standards on issues with high societal relevance: education, labour, economic development of poor nations.

10.3 PROGRAMME EVALUATION

The human capital group is a small-scale research programme. Three of our PhD students have finished (or are about to finish) their PhD. Three have successfully entered the (international) job market and already accepted offers from Gothenburg University (Nadine Ketel, tenure track), University of Groningen (Noemi Peter, tenure track) and University of Amsterdam (Nienke Ruijsch, postdoc).

The year 2015 did not deliver much published scientific output. Highlight this year is Menno Pradhan, who managed to publish his paper in Plos One, which is the world’s first multidisciplinary Open Access journals. Compared to previous years, we treat the reduction in output as an unfortunate event, but not as a concern. This is just temporary. Publishing articles in international refereed (and prestigious) journals takes quite some time. In a small research group, such as the HC group, it is therefore only natural that in some years published output is low. Also the past publishing record of human capital members has been outstanding with several articles published in A and AA level journals. Moreover, there has sufficient scientific output that has been accepted but not published yet. Examples include forthcoming articles in esteemed journals such as American Economic Journal: Applied Economics, Economic Journal, Journal of Human Resources, World Bank Economic Review.

The human capital group provides a stimulating research environment. This environment is partially shaped through national and international connections, external seminar series, internal work-in-progress meetings, and international visitors. Human capital members have close research contacts with researchers at ASE, Free University Amsterdam and Tinbergen Institute, work together with researchers from Europe and US, and are regularly invited to give seminars and (keynote) speeches throughout the world. Members of the human capital group organize a successful weekly seminar series at Tinbergen Institute. The seminar series is internationally renowned, and, in 2015, included presentations of Barbara Petrongolo (Queen Mary), Andrew Shepard (UPenn), Mark Rosenzweig (Yale), Jerome Adda (Bocconi) and Andrea Weber (Mannheim). Members of the human capital group (including senior researchers, PhD students and visitors) also come together weekly to discuss their work in various stages.

The human capital group attracts and delivers many good PhD students. Our PhD students are generally doing well in terms of performance and placements (at among others University of Mannheim, Gothenburg University, University of Oslo and Purdue University). One of our PhD students (Thomas Buser) received various prestigious prizes, including Christian Huygens Science Award (for offering the most innovative contribution to economics as a science). In 2015, there are 6 PhD students working at the human capital group.

Apart from scientific relevance, the human capital group offers high quality teaching in the bachelor, master and research master programmes. The courses taught by human capital members include applied econometrics, labour economics, the economics of education, development economics, impact evaluation. This year highlights include the exceptional performance of Adam Booij, who has been awarded the Van der Schroef Award 2015 for being the best lecturer at ASE.
The work of human capital members also addresses practical policy issues with societal relevance. In addition, most research is empirically orientated and can be formulated such that it is relatively easy to comprehend for policy makers. Members of the human capital group are in close contact with the Ministry of Education, Culture and Science and regularly come together to communicate their scientific work with insights and recommendations. Members are also frequently invited to consult on a variety of governmental policy issues. Henriette Maasen van den Brink is member of the Amsterdam Economic Board which strives to stimulate and support sustainable collaboration, innovation and growth in the Amsterdam region, and strengthen international competitiveness. Henriette Maasen van den Brink has also been appointed chair of the Education Council (Onderwijsraad) which is an independent governmental advisory board that advises the ministers, parliament and local authorities. Hessel Oosterbeek is advising the municipalities of Amsterdam and Utrecht on how to re-organize school assignment procedures. Erik Plug is the president of the European Society of Population Economics, which is an association of about 650 scientists working in field of population economics (or related to population economics).

In sum, the human capital group experienced a good year in terms of academic output. While small, the group’s interests and scientific methods are internally coherent and clear; that is, the human capital research programme covers mainstream topics in applied microeconomics (including the economics of education, family and demographic economics, health economics, labor economics and development economics) with a strong focus on microeconometrics.

In previous years there have been serious concerns about group size and structure. In particular, the group (excluding TIER members) has been an unbalanced research group with only 6 PhD students, 1 PostDoc/Assistant Professor, and 3 Full Professors; a viable and serious research programme requires at least one or two tenured assistant/associate professor positions. The unbalancedness has been recognized. In 2015 Adam Booij has been promoted to a tenured Assistant Professor. And as of 2016, Pauline Rossi from Paris School of Economics will join us on a tenure-track Assistant Professor position as an empirically orientated microeconomist in the area of development economics.

To further maintain the high level of research in future years, our aim is to intensify our collaboration with the labour economics group at Free University, which research programme closely relates to ours.

This evaluation can be summarized in the following SWOT analysis:

**Strengths:** high quality research addressing issues of societal relevance; stimulating research environment; good reputation; healthy inflow and outflow of PhD students; successful history in attracting external funds (TIER); internal coherent and visible research theme.

**Weaknesses:** unbalanced research staff; largely dependent on external funding.

**Opportunities:** we have successfully sought closer collaboration with labour economics group at Free University Amsterdam (ACAM); we have successfully attracted a development economist for a tenure track position in 2016.

**Threats:** economics as a science has evolved in a more empirically orientated field of science; this is why most (serious) economic departments offer a more empirically orientated curriculum to economics students and have sizable groups of empirically orientated microeconomists. In our department, the increasing empirical importance is not reflected in our curriculum, where we as a small-scale research programme are practically invisible.
10.4 RESOURCES AND FUNDING

TIER-research is currently funded by the local municipality of Amsterdam. Over a period of 5 years (2015-2020) TIER will receive €5.3 million. Two PhD students (Nadine Ketel and Lennart Ziegler) are been cofinanced with Free University Amsterdam (VU). Two PhD students (Nadine Ketel and Sabina Albrecht) have received NWO talent grants. Several visiting researchers participate in the programme, without financial compensation. AIID also receives substantial external funding.

10.5 OUTPUT

Key publications

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**Article in magazine or newspaper – popular scientific**


**Internet article – professional**


**Book / book chapter – refereed**


**UvA dissertation – internally**


**Working- or discussion paper**


70


**Editorship**
11. EXPERIMENTAL & POLITICAL ECONOMICS (CREED)

Programme Director                      Prof. dr. A.J.H.C. Schram
METIS-code:                               uva/feb/ase/epe
JEL-classification:                       D7, D8
Starting date:                            1991
Websites:                                 www.aseri.uva.nl/epe
                                         www.creedexperiment.nl/creed

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11.2 PROGRAMME DESIGN

Objective

Improving the understanding of the behavioural determinants and consequences of economic decision making by (a) focusing on political economic issues, (b) allowing for bounded rationality, and (c) using laboratory experimentation as research method.

Motivation

Political decision making plays an important role in economies. Governments, for example, are essential for the functioning of markets, may be called upon to correct for market failures, but also have their own dynamics. Positive welfare effects of policies cannot be taken for granted. It is, therefore, important to study political decision making and the way in which policies can be applied beneficially. These observations provide the motivation for the first project: “Economics of political decision making”, a long standing project at the FEB dating back to 1983. It is related to public choice and the more recent upsurge in political economics.

Economic models, also when concerned with political decision making, typically make strong assumptions about the rationality, sophistication, and selfishness of individual behaviour. Experimental and other empirical evidence suggests, however, that the predictive power of the standard ‘homo economicus’ model is often disappointing and depends on the institutional character of the decision making environment. There is a need for greater knowledge and a more satisfactory treatment of the bounds on rationality generated by the nature of cognition and emotion, and the influence of institutions. This motivates the second project: “Bounded rationality and institutions”, which fits into the emerging field of behavioural economics.

For the advancement of theory, empirical feedback is crucial. This may hold in particular for new research areas, when sorting out the most promising ways to go. Empirical analysis is seen as an important ingredient of this programme. For many of the issues studied in the aforementioned two projects, however, adequate field data are hard to come by or even nonexistent. Laboratory experimentation is a helpful complementary research method, especially in these cases, for exploration or the testing of models focusing on fundamental behavioural aspects or mechanisms. This motivates the third project: “Experimental economics”, which is stimulated by, and provides feedback for, the other two projects.

Institutional embedding

The research of this programme is carried out within the Center for Research in Experimental Economics and political Decision-making (CREED), a research institute of the FEB. CREED was established in 1991 by a PIONIER-grant from the Netherlands Organisation for the Advancement of Scientific Research (NWO) for the development of experimental economics in the Netherlands. An important facility is the CREED-laboratory for experimental economics, one of the few dedicated
computer laboratories in Europe. Its focus on political decision making and experimental economics distinguishes CREED internationally.

Projects

I Economics of political decision making
This project is concerned with the demand for and the endogenous supply of government policies, the ways in which coordination takes place through the political decision-making process, and the effects thereof on the economy. Major research topics are:

- Political participation and influence (voting, activity and influence of interest groups);
- Interaction between the public sector and the private sector (e.g. the development of social capital and its importance for the provision of public goods);
- Political economy of public and private institutions (e.g. issues of fiscal federalism).

II Bounded rationality and institutions
In this project fundamental aspects of individual decision making, with economic relevance, are investigated. More particularly, attention is focused on the impact of cognitive limitations and emotions. In addition, responses to the complexity and institutional characteristics of the decision environment are studied. Among the topics investigated are:

- Group formation in complex environments (e.g. development of political preferences through social interaction, development of interest groups);
- Economic significance and modelling of emotions (e.g. anger, anxiety, happiness);
- Performance of various auction formats;
- Irrationalities in risk attitudes, and efficiency gains by avoiding or reckoning with these.

III Experimental economics
The main purpose of laboratory experiments in economic research is to create a (political) economic process in a laboratory environment which allows for sufficient control and accurate measurement. Experiments are used for three purposes: (a) the testing of behavioural assumptions and predictions of existing (competing) theories; (b) the searching for facts that are instrumental in the construction of descriptive and explanatory theories; and (c) the evaluation of (new) institutions to assist policy makers. Research in this project is particularly stimulated by, and provides feedback for, the aforementioned two projects. Major lines of research are:

- Voting and electoral competition (behaviour of voters and political candidates/parties);
- Lobbying and political pressure (ways and means, and determinants of effectiveness);
- Emotions and economic behaviour (impact, and modelling);
- Markets and institutions (functioning of markets and, the design of, institutions);
- Evolution of cooperation (development of cooperative behaviour over time);
- Biases in risk attitudes.

11.3 PROGRAMME EVALUATION

2015 was a good year for CREED. We again witnessed a good set of high-level publications, successful PhD defenses and we welcomed promising new members.

We welcomed seven new members to CREED in 2015. Shaul Shalvi (UDH) joined the communication lab project together with his PhD student Margarita Lieb; Carsten de Dreu also joined the communication lab project (20%). Maël Lebret (Postdoc) switched the Business school for the School of Economics; Stefan Jagua joined as a PhD-student (supervisors Offerman and van Veenen) as did Junze Sun (supervisors Schram and Sloof) and Adreij Wormer (supervisors Schram and
Onderstal). In addition, Joël van der Weele changed his position from a postdoc (financed by the Research Priority Area Behavioral Economics) to a tenure track position. Arthur Schram left this summer for Florence (60%) but stays for 40% at CREED. Because of this the programme directorship has passed from Arthur Schram to Joep Sonnemans.

In 2015 we had to say goodbye to Gönül Doğan who took the position of Junior Professor at the University of Cologne, and to the PhD students Aaron Kamm (New York University Abu Dhabi), Matthias Weber (Bank of Luthuania and lecturer at the Vilnius University) and Anita Kopányi-Peuker (postdoc at CeNDEF).

2015 was a very good year in terms of research output. Four PhD theses were successfully defended by graduate students (Boris van Leeuwen, Aaron Kamm, Matthias Weber and Anita Kopányi-Peuker).


External recognition of the research undertaken at CREED was received in various other ways as well. These include 38 invitations to present seminars or keynote lectures, various associate editorships and a continued membership of the Junior Academy of the Royal Netherlands Academy of Arts and Sciences for Matthijs van Veelen.

Research contacts were continued, i.a., by a successful seminar series that included presentations by renowned scholars such as Matthew Embrey, Martin Dufwenberg, Stefan Trautmann, Anna Dreber, Zachary Grossman, David Cesarini, Dan Benjamin, Carsten de Dreu, Herve Moulin, Ingela Alger, Pedro Rey-Biel, Gijs van der Kuilen, Mohammed Abdellaoui, Joshua Miller, Maja Adena, Holger Herz, Roberto Galbiati, Drazen Prelec and Lise Vesterlund. CREED’s participation in the Cognitive Science Center Amsterdam (CSCA) continued, as did our yearly PhD exchanges with the Universities of Nottingham and East Anglia. These exchanges provide excellent opportunities for CREED PhD students to present their work (at all stages of the project) to an audience consisting of PhD students and world-renowned professors of the participating institutes. Finally, together with Jeroen van de Ven, Arthur Schram organized a summer school on Experimental Economics.

11.4 RESOURCES AND FUNDING

Concerning funding, we are happy that Maël Lebreton received a Marie Curie grant and a VENI grant, and that Shaul Shalvi took his ERC starting grant with him to CREED.

The programme again received modest funding from the research institute ASE-RI, which was largely spent to cover (part of the) traveling costs to attend conferences. Additional means were obtained from external funding and the Tinbergen Institute (for PhD-students).

Substantial additional means came from the UvA-Research Priority Area Behavioral Economics. This provides a solid foundation for paying participants in experiments at the CREED laboratory. The additional Central Research Priority funds (€301,000, yearly) for the communication lab will be used for developing a communication lab and hiring a tenure tracker.
11.5 OUTPUT

Key publications

Forthcoming
Kopányi-Peuker, Anita, Theo Offerman and Randolph Sloof (forthcoming). Fostering cooperation through the enhancement of own vulnerability *Games and Economic Behavior*.
Nosenzo, Daniele, Theo Offerman, Martin Sefton and Ailko van der Veen (forthcoming). Discretionary Sanctions and Rewards in the Repeated Inspection Game *Management Science*.
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**Article in journal - refereed**


**Working- or discussion paper**


**UvA Dissertation – internally prepared**


**Conference organiser**

**Recognition**
Shaul, S. (2015-2020). European Research Council (ERC Starting grant), awarded 2014, €1500K

**Media appearance**
Weele, J. van der (2015). Bimonthly column on behavioral economics on "economie.nl", the website of ESB.
Winden, F. van (2015, May 30-31). Interview with Marijke Stellinga about CREED for newspaper NRC.

**Editorship**
Offerman, T.J.S. (2015). Member of the Editorial Board of Experimental Economics.
**Keynote/invited talk**


Hu, Audrey, and Liang Zou (2015). "Sequential Auctions with Generalized Interdependent Values," Hong Kong City University, October 2015, Hong Kong, China.


Lebreton M (2015). Amsterdam Institute for Addiction Research, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands.


Shalvi, S. (2015, April). The collaborative roots of corruption, Bar Ilan University, Ramat Gan, Israel.


Shalvi, S. (2015, June). The collaborative roots of corruption, Recanati Business School, Tel Aviv University, Tel Aviv.

Shalvi, S. (2015, May). The collaborative roots of corruption, Hebrew University, Jerusalem Tel Aviv.
Shalvi, S. (2015, June 25). The collaborative roots of corruption. Sopot, Poland, "Moral judgment and behavior", invited to a small group meeting organized by the European Association for Social Psychology.
Ule, A. (2015, October 20). "Introduction to Experimental Economic", two lectures for graduate students University of Salerno.
Winden, F. van (November 17, 2015). Seminar, Incidental fear and financial risk taking, Department of Economics and Business Economics, Radboud University, Nijmegen.

Other lectures


Kopányi-Peuker (2015, April 21). Endogenous information disclosure in experimental oligopolies. NIBS 2015 workshop (Nottingham, United Kingdom).

Kopányi-Peuker (2015, February 24). Endogenous information disclosure in experimental oligopolies, CBESS Seminar (University of East Anglia, Norwich, United Kingdom).

Kopányi-Peuker (2015, January 10). Fostering cooperation through the enhancement of own vulnerability, RES PhD Presentation Meeting and Job Market (London, United Kingdom - poster presentation.


Membership academies
Offerman, T.J.S. (2015). Fellow of CESS, NYU.
Onderstal, S. (November 19, 2015) Member of PhD committee Xiaoming Cai, VU University Amsterdam
Onderstal, S. (October 1, 2015) Member of PhD committee Hsin-Mien Wang, Bielefeld University (pre-defense)
Winden, F.A.A.M. van (2015). KHMW.
Relevant position


12. MARKETS & ORGANIZATIONS

Programme director: Prof. dr. R. Sloof
METIS-code: uva/feb/ase/mo
JEL-classification: L
Starting date: 2005
Website: www.aseri.uva.nl/mo

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PhD students 3,19 2,38 2,38
12.2 PROGRAMME DESIGN

Objectives

Broadly defined, the research programme on Markets & Organizations aims to improve our understanding of the working of markets and organizations in capturing the economic benefits from collective action and to identify as well as evaluate (policy) interventions that may improve market or organizational performance.

Motivation

The field of Markets and Organizations is broad. Research within the programme is centered around both Industrial Organization, Competition Policy & Regulation (i.e. “markets”), and Organizational Economics. Moreover, given the historical origin of the organizational economics group, there is a close and well-established link with research on the Economics of Entrepreneurship. Three different, but closely interrelated lines of research can thus be delineated.

The first line of research studies the working of imperfectly competitive markets, in particular how firms compete with each other on these markets and what the effects are of policy interventions aimed at affecting market performance. The natural focus is on oligopolies where firms have some market power. Topics of interest include (but are not restricted to) pricing strategies, (tacit) collusion, locational choice, research and development, inter-firm relationships, competition policy, market design, auctions, two-sided markets, network industries, regulatory design and enforcement tools (including detection, fines, leniency programmes and settlement).

Within economics organizations can be viewed as a means of achieving the benefits of collective action in situations where the price system fails. The second strand of research within M&O on Organizational Economics is concerned with studying the effective internal functioning of organizations in capturing these benefits. The key focus is on problems that may arise from coordinating and motivating the members of an organization to create economic value through superior organizational performance and to study potential remedies for these problems.

The third line of research on the Economics of Entrepreneurship focuses on studying (the determinants of) the choices, behavior and performance of entrepreneurs and on whether and how government policy may be effective in fostering entrepreneurship.

Methods

Within the M&O programme a there is an emphasis on both sound empirical work and on applied theory. Empirical analyses primarily focus on the detection and measurement of unbiased effects, either through the use of naturally occurring field data (by means of ‘quasi experiments’ and instrumental variables techniques), field experiments or laboratory experiments. Applied theory typically concerns using the tools from microeconomics and applied game theory to evaluate the impact of either government policy or organizational interventions intended to improve efficiency. Often these models are enriched by incorporating insights from behaviour economics, as empirical evidence has mounted that people do not always satisfy the rationality assumptions made in traditional economic models. Research within the M&O group is always done with a keen eye towards societal relevance, ranging from competition policy, practical auction design in procurement, to the effectiveness of entrepreneurship education in stimulating entrepreneurial intentions.
Projects

A wide variety of topics and questions are studied within the M&O research programme, which by and large can be divided along the three different lines of research outlined above. Each of these can be further subdivided into a number of different research projects.

1. *Industrial Organization, Competition Policy & Regulation*

1.1 *Competition policy & Regulation*

Current empirical projects on competition policy deal with potential deterrence effects of merger policy tools, based on data from the U.S. Department of Justice and the U.S. Federal Trade Commission. Furthermore, group members have investigated whether firms that collaborate in research joint ventures, use these collaborations to collude in product markets. In another project, a series of experiments is set up to study the relationship between competition, the size of a loss and firm profits in insurance markets. Also the impact of antitrust policy at large is investigated. This is done by further refining the methodologies to estimate price cost margins and by applying the methodology to data from e.g. the Indonesian economy. In addition to the nation-wide impact of the introduction of antitrust policy, also the change in the behaviour of targeted firms was investigated by a difference in difference method. Another strand of research focuses on the Dutch mortgage market. An explanation it puts forward for high mortgage rates is state aided price coordination in Dutch mortgage banking; at some point in time three out of the four main competitors received state aid, prohibiting them to undercut rates of firms that do not get state aid. This allowed the single remaining big player to effectively act as a price leader and implicit coordinator of collusive pricing.

1.2 *Research and development*

Research cooperation is key for businesses to successfully innovate and prosper, and firms increasingly rely on extensive networks to achieve their goals. It is, however, still poorly understood how these R&D cooperatives are formed, how they evolve, what their impact is on R&D activities, and what should constitute an optimal R&D policy. These questions drive several research lines. For instance, group members are developing a theoretical framework of research network formation. This framework is tested against a database that includes all large research collaborations in the U.S. Other group members assess the welfare implications of sustaining R&D cooperatives. Again, the fundamental trade-off between static and dynamic efficiency is addressed, giving additional insights as to what should constitute an optimal R&D-stimulating policy.

1.3 *Auctions*

In the past few decades, the study of auctions has become one of the most active research areas in economic sciences. We aim at answering questions such as: How to prevent cartel formation in auctions? What is the effect of limited liability on bidding behaviour? How to design auctions of multiple objects? What are optimal mechanisms in quasi-markets such as welfare-to-work markets and health care markets? What is the effect of license auctions on the performance of markets? For example, groups members have studied experimentally the impact leniency programmes on the collusive properties of different auction types. Others have studied fundraising mechanisms on charitable giving in a door-to-door fundraising field experiment. The starting point here is that people are not purely selfish because if they were they would donate nothing to charity.

1.4 *Economic analysis in competition cases*

Increasingly does economic analysis play a decisive role in competition law enforcement. In competition cases, economic arguments in market definition, for example in two-sided markets, the theory of harm, or an efficiency defense can be decisive in the finding of an infringement and the design of remedies. Since business strategies constantly evolve, the thinking about possible anticompetitive aspects of them is under constant development as well. Topics studies in this research focus range from quantifying the efficiency defense in merger control and the identification of abuse
of dominance strategies, to analyzing the effects of State aid remedies and the calculation of cartel damages.

2. Organizational Economics

2.1 Decision rights and internal organization
A key feature of organizational architecture is the division of tasks and responsibilities within organizations: who does and decides on what? Employees lower in the organizational chart typically have better knowledge to take operational decisions, but at the same time have objectives that (may) differ from the interests of the firm. Within this project the tradeoffs that arise in delegating decision authority –like a loss of control versus a loss of initiative– are studied. The focus is in particular on behavioural biases that may affect these tradeoffs; especially when it comes to authority and monitoring non-monetary motives have been found to play a prominent role. Another topic concerns whether (procedural) preferences regarding the way in which decisions are taken affects how efficiently these taken decisions are subsequently implemented.

2.2 Performance measurement and reward systems
A second set of projects within the domain of Organizational Economics is concerned with the design of good performance measures and of appropriate reward systems. Performance measures are for instance evaluated empirically in terms of their noise and their distortions. The research on reward systems focuses predominantly on (among other things) pay-for-performance contracts, career opportunities and promotions, returns to investments in skills acquisition and the interaction between explicit and implicit incentives. Also here a behavioural approach is typically taken, as people often care about how well they fare relative to others.

3. Economics of Entrepreneurship

3.1 Evaluation of entrepreneurship programmes
Public policy has increasingly proposed and implemented programmes to encourage entrepreneurship. Most of these programmes are designed to decrease human and financial capital constraints. We aim at measuring the causal effect of these programmes, with a focus on entrepreneurship education, on the intended outcomes by using field experiments.

3.2 The behavioural traits of entrepreneurs
This research aims to identify the defining behavioural traits of entrepreneurs and to establish to what extent these differ from managers. The relevant traits studied include, among other things, attitudes towards risk and losses, overconfidence, intuitive and rational thinking, optimism, willingness to compete and willingness to cooperate in a team. Established entrepreneurs and managers participate in online incentivized tasks designed to measure the relevant traits. We are building a database of entrepreneurs and managers that can be approached for this purpose bi-annually.

12.3 PROGRAMME EVALUATION

Turnover

In September 2015, former programme co-director prof. dr. Jeroen Hinloopen took up a position at Utrecht University. He still has an affiliation with the research programme as a guest researcher. As of September 2015, András Kiss joined the research programme on a tenure track position. András field of expertise is (empirical) industrial organization.

Laura Rosendahl Huber successfully defended her PhD thesis in April 2015, Eszter Czibor did so in November 2015. Laura took up an assistant professor position at the Max Planck Institute in Munich, while Eszter obtained a postdoc position at the University of Chicago financed by a Rubicon grant. Martin Koudstaal, Lukas Tóth and Liting Zhou are expected to defend their theses in 2016. Junze Sun
and Andrej Woerner joined the research programme as new PhD students (jointly supervised with Arthur Schram from the CREED research programme).

**Strengths:** The group has a very broad orientation, both in terms of the choice of research topics as in terms of methodologies used (theoretical/[lab/field]experimental/empirical). Group members are each other’s complements, which regularly yields papers that are co-authored by several group members. The group is well-embedded in ASE and in the Tinbergen Institute; group members thus have coauthored papers with members from other ASE research groups. The research performed by the group is not only of high quality (with key publications appearing in top journals), but also very visible and of great practical importance (e.g. the work of Schinkel on the Dutch mortgage market). Group members have close links with governmental bodies such as ministries and antitrust agencies. The group is relatively young, hosts highly qualified researchers, and has a high growth potential. Thomas Buser was again extremely successful this year, this time among other things receiving the Christiaan Huygens science prize.

**Weaknesses:** There is too little coherence in the broad research programme. The group is not prominent in the arena of theoretical industrial organization and contract theory, except for the field of auction theory.

**Opportunities:** Joint physical location to stimulate regional spillovers; cross-fertilization of research fields; the creation of an M&O major at TI. Within Europe, the group has close contacts with research groups in industrial organization at other universities. The challenge is to establish a more formal network with these other departments in order to pool research projects and resources.

**Threats:** The group has a small-scale, with only a few PhD students and no postdocs; a viable research programme needs a continuous inflow and outflow of PhD students.

**Societal relevance**

Research by the group on the deterrence effects of merger policy tools and the effectiveness of leniency programmes is directly relevant to competition agencies and governmental bodies such as the ACM. Besides, the group’s empirical projects target specific markets the functioning of which is of major importance to social welfare, such as the banking sector, insurance markets, retail gasoline pricing and public procurement. For this reason, research by the group regularly features in national newspapers and international magazines. Group members also appear on television to contribute to the debate by commenting on the developments in specific markets and the effects of these on competition. Maarten Pieter Schinkel, for instance, is frequently asked for media appearances commenting on the (non)competitiveness of the Dutch mortgage market. Group members also participate in governmental expert committees and provide targeted advise for particular policy issues. For instance, Sander Onderstal advised the Ministry of Economic Affairs on the design of the auction for mobile telecommunications, and Jo Seldeslachts was a member of the expert committee “Toekomst van toezicht” of the Dutch Wetenschappelijke Raad voor het Regeringsbeleid (WRR).

12.4 **RESOURCES AND FUNDING**

- Standard funding from TI and ASE-RI
- ACLE receives additional funding directly from the FEB-Dean; some group members (Schinkel) are partly financed by ACLE
- Funding from research priority area ‘Behavioural Economics’
- VENI-grant Buser
- Use CREED lab
12.5 OUTPUT

**Key publications**


**Forthcoming**


**Publications in numbers**

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**Article in journal – refereed**


**Article in journal – professional**


**Book/book chapter – refereed**


**UvA dissertation – internally prepared**


**Working-or discussion paper**


Conference organiser


Recognition

Editorship


Key note/invited talk


Sloof, R. (2015, May). Seminar, Goethe University, Frankfurt am Main, Germany.


92
Other lectures
Buser, Th. (2015, August) Meeting of the European Economic Association, Mannheim.

Membership academies
Onderstal. S. (2015, October 1). Member PhD committee Hsin-Mien Wang, Bielefeld University (pre-defense).
Schinkel, M.P. (2015). Member of the Royal Holland Society of Sciences and Humanities (Koninklijke Hollandsche Maatschappij der Wetenschappen).

Relevant position
Sloof, R. (2015). Visiting professor at Copenhagen Business School, Department of Innovation and Organizational Economics.
## 13. SEO ECONOMIC RESEARCH

Subprogrammes:
- Labour & Education
- Health Care & Social Security
- Competition & Regulation
- SEO Aviation Economics
- Market & State
- Financial Markets & Finance

Programme director: Prof. dr. B.E. Baarsma
METIS-code: uva/feb/ase/seo
JEL-classification: I, J, L, Q, R
Website: www.seo.nl

### 13.1 MEMBERS OF THE RESEARCH GROUP AND RESEARCH IN FTES

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13.2 PROGRAMME DESIGN

SEO Amsterdam Economics was founded in 1949, by the Economic Faculty of the University of Amsterdam, to encourage applied research. This makes SEO one of the Netherlands' oldest economic research agencies. SEO Amsterdam Economics was transformed into a foundation independent from the University in the nineteen-eighties, although it retains close links with the academic community.

Our clients are many and varied: we work for ministries, companies and institutions in the non-profit sector, both nationally and internationally. SEO Amsterdam Economics is an independent organisation: as we are not linked to specific interests or parties, we are often requested to carry research into 'open questions'. In general, SEO reports are made public to guarantee our autonomy and scientific quality.
SEO Amsterdam Economics is a medium-sized, horizontal organisation. We have a scientific staff of about 40, the majority of whom are economists or econometricians. As the occasion arises our staff carry out research in cooperation with scientists from other disciplines.

**Structure**

SEO Economic Research consists of six research groups or sections organised along fields of economic research. A first section is **Labour & Education** which specialises in labour market, labour market policy, schooling and training research. Research topics deal with employability, transition from school to work, temporary work, re-integration and exit from unemployment, wage differentials, employment benefits, migration, schooling and work and the evaluation of educational policies.

The section Financial markets and Finance helps clients with targeted financial-economic research and advice. Finance is a field that has traditionally been used mainly in the corporate sector, but nowadays is being used increasingly in the (quasi-)public sector as well. SEO's financial-economic research and advice focuses on three areas: (1) financial regulation and financing of activities with a public interest (2) financing of public activities, and (3) the interface between the public and private sector.

The section **Health Care & Social Security** analyses developments in healthcare and social security, with research often shaped by the highly regulated nature of these two sectors. This section specialises among others in market analyses, effectiveness and cost-benefit studies and budgeting and costing systems.

Research in the section **Competition & Regulation** concentrates on the design, analysis and evaluation of competition and government intervention. The section deals with issues related to the structure, conduct and performance of markets and sectors, regulation and deregulation, economic aspects of cartels, mergers, market dominance and other topics in the field of competition. It assesses new or established regulations and policy from the perspective of law and economics.

**SEO Aviation Economics** is a section specializing in aviation economics. It advises governments, airlines, airports, financial institutions and other interested parties on the economic issues related to aviation. Aviation Economics activities include operations research, econometric analyses and forecasting, feasibility studies and research into competition and market issues, as well as work in transport and regional economics.

The **Market & State** section specialises in the economic analysis of state aid and public tenders. Economic organization and the boundaries between public and private economic activity are other issues that are dealt with in this section.

**Organisation**

SEO Amsterdam Economics is governed by a six-member Executive Board. Day-to-day policy is in the hands of the general director and the deputy director. Moreover, SEO has a management team, which consists of the director and the section heads. SEO Economic Research also has an Advisory Board which meets yearly to review its research programme.

**13.3 PROGRAMME EVALUATION**

Academic publications by researchers at SEO Amsterdam Economics are often a spin-off from contract research which is SEO's core activity. This year 21 articles were published in refereed journals or refereed books. The number of non-refereed academic publications was substantial.

In 2015 SEO researchers published 51 commissioned reports and 43 other publications such as popular publications and newspaper articles.
13.4 RESOURCES AND FUNDING

SEO Amsterdam Economics has set up an internal fund for scientific research which allots time to researchers working at SEO and which enables them to prepare papers for scientific publications and to participate in (international) economic conferences. Researchers at SEO Amsterdam Economics publish regularly in national and international professional journals. Only by publishing and lecturing, a research institute stays ‘alert’ and keeps abreast of the newest developments in applied economic research. Core activity is contract research and the majority of research funding originates from contract parties.


13.5 OUTPUT

**Key publications**


**Forthcoming**


97
### Publications in numbers

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</table>

### Article in journal – refereed


Baarsma, B. (2015, 22 October), Accountants, Statistiek: Economie en samenleving, Economisch-Statistische Berichten, 100(4719), 621.

Baarsma, B. (2015, 10 September), Onderwijs, markt en overheid, Economisch-Statistische Berichten, 100(4717), 10 september, p. 523.


Kotliarov, M.A., Мегаспорттивные мероприятия и развитие территорий - работы зарубежных авторов, (Megasportevenementen en de ontwikkeling van regio's -werken van buitenlandse auteurs), Jekaterinburg, Rusland.


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**Article in journal – popular scientific**


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**Article in magazine or newspaper – popular scientific**


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**Book / book chapter – refereed**

**Book / book chapter – non-refereed**

**Internet article – professional**

**Web content – popular (column)**

**Conference paper (proceedings) – non-refereed**

**Report – professional**


**Working- or discussion paper**


**Book review**

Conference organiser

Media appearance
Baarsma, B. (2015). Barbara Baarsma in het Economen Panel, BNR, Amsterdam, 4 November, 7 October, 9 September, 19 August, 1 July, 27 May, 6 May, 8 April, 18 March, 18 February, 7 January.
Baarsma, B. (2015, 31 October). Barbara Baarsma over hervorming belastingstelsel, Beleggen International RTLZ.
Baarsma, B. (2015, 17 October). Over rondvaartboten, Radio 1, Argos, VRPO.
Baarsma, B. (2015, 6 October). Amsterdamse huizenmarkt, BNR.
Baarsma, B. (2015). Barbara Baarsma neemt de kranten door van die ochtend, Radio 4, De Ochtend Van 4, 4 September, 5 June, 29 April, 6 March, 8 January.
Imandt, M (2015, 20 January). BNR, nieuwsradio. Alles wat je moet weten over...het leenstelsel". M. Imandt licht in een kort vraaggesprek toe wat er op basis van onderzoek te zeggen is over de effecten van het studievoorschot.
Kok, L. (2015, February). BNR Uitgezocht, Meer banen door korten op doorbetaling zieke werknemers? L. Kok zegt: "Voor kleine bedrijven is het een enorm risico om iemand in dienst te nemen als je weet dat je diegene twee jaar moet doorbetalen bij ziekte.
Koopmans, C. (2015, 14 March). Interview met C. Koopmans over de kosten en baten van de Rotterdamsebaan, een nieuwe invalsweg voor Den Haag, Radio 1, Argos,
Tieben, B. (2015, 5 October). Bert Tieben over de impact van de splitsing op de duurzaamheid. BNR Duurzaam, Amsterdam.

Editorship
Tieben, B. (2015). Member editorial board TPedigitaal.

Keynote/invited talk


Other Lectures


Baarsma, B. (2015, 16 September). Over wat er niet in de Miljoenennota staat, maar wat er wel in had moeten staan, Lezing tijdens Prinsjesdagbijeenkomst, Rabobank Hart van Brabant, Oisterwijk.

Baarsma, B. (2015, 16 September). Over wat er niet in de Miljoenennota staat, maar wat er wel in had moeten staan, Lezing tijdens de Prinsjesdagontbijt, KPMG/Adecco/Aon/Banning, Den Bosch.


Baarsma, B. (2015, 8 September). De toekomst is grenzeloos dichtbij, Lezing tijdens Sallandse Ondernemersavond, Rabobank Salland, Deventer.


Baarsma, B. (2015, 10 February). Grexit, Brexit and economic growth. ABN AMRO World Tennis Tournament, Rotterdam.


Baarsma, B. (2015, 22 January). Waarom is onze economische groei zo fragiel? In the long run we are all dead. 1e Malmberg Economie Docentencongres, Amsterdam: Beurs van Berlage.


Burghouwt, G. (2015, April). Visiting professor at the University of Bergamo for the transport economics and management course.


Membership academies

Baarsma, B. (2015). Member of PhD committee of Rob Wagenvoord, Essay on co-assurance, UvA.

Relevant position


Heyma, A. (2015). Member Expertgroep Arbeid, CBS.
Heyma, A. (2015, July). Member Beoordelingscommissie ‘Excellent onderwijs NRO.