



Annual research report 2019



Amsterdam School of Economics

PREFACE

The 2019 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 Amsterdam School of Economics and therefore also ASE-RI pride themselves with their large number of highly qualified successful researchers whose research is documented in this yearly report.

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Director of the Amsterdam School of Economics Research Institute

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THE RESEARCH INSTITUTE

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 Economics & Business (EB); 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 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 Economics and Business on Risk and Macro Finance, in which researchers from (behavioural) finance, macro-economics, and actuarial science participate.

From 2019-2020 onwards, the research focal areas financed by the faculty are terminated in order to stimulate research in the, so-called, “Outside-In areas”: Sustainability and Environmental Economics, Responsible digital transformations, Resilient society and stability, Nudging for a better world. Full responsibility for the RPAs will also from now on reside with the faculty whilst the financing from the University will continue.

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

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 programmes, 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 of 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-RI 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.

2. INPUT

2.1 Research Staff

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 the research capacity increased. A noticeable change is the relative decrease of the number of staff financed by the second flow of funds. 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 postdoctoral researchers are low.

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

	fte	2017	2018	2019
WP 1 (first flow of funds)		35,27	36,52	37,36
WP 2 (second flow of funds)		12,06	11,74	11,12
WP 3 (third flow of funds)		35,04	32,02	40,98
Ph.D. students		18,10	20,23	22,42
Total Research staff		82,37	80,28	89,46
Support staff ASE-RI (bureau)		1,00	0,93	0,84
Total Staff		83,37	81,21	90,30

Table II: Input research staff at programme level (FTE)

UvA-Econometrics	fte	2017	2018	2019
WP 1 (first flow of funds)		4,14	4,55	4,78
WP 2 (second flow of funds)		0,00	0,00	0,00
WP 3 (third flow of funds)		0,00	0,00	0,00
Ph.D. students		1,60	1,87	2,13
Total Research staff		4,14	4,55	4,78
Equilibrium, Expectations & Dynamics	fte	2017	2018	2019
WP 1 (first flow of funds)		5,88	6,81	6,77
WP 2 (second flow of funds)		3,03	2,60	0,51
WP 3 (third flow of funds)		0,00	0,00	0,00
Ph.D. students		3,74	4,33	4,17
Total Research staff		8,91	9,41	7,28
Actuarial Science & Mathematical Finance	fte	2017	2018	2019
WP 1 (first flow of funds)		3,53	3,81	3,29
WP 2 (second flow of funds)		0,00	0,00	0,00
WP 3 (third flow of funds)		1,45	1,33	1,61
Ph.D. students		1,87	1,19	1,07
Total Research staff		4,98	5,14	4,90
Macro and International Economics	fte	2017	2018	2019
WP 1 (first flow of funds)		6,36	4,99	6,67

WP 2 (second flow of funds)	0,25	0,80	0,80
WP 3 (third flow of funds)	1,25	1,98	2,10
Ph.D. students	3,15	3,70	4,81
Total Research staff	7,86	7,77	9,57
<i>Human Capital</i>	fte	2017	2018
			2019
WP 1 (first flow of funds)	3,02	3,08	3,25
WP 2 (second flow of funds)	3,86	2,55	2,61
WP 3 (third flow of funds)	0,20	0,20	0,20
Ph.D. students	0,94	0,93	1,60
Total Research staff	7,08	5,83	6,06
<i>Experimental & Political Economics</i>	fte	2017	2018
			2019
WP 1 (first flow of funds)	8,25	7,97	7,57
WP 2 (second flow of funds)	4,39	5,79	7,13
WP 3 (third flow of funds)	0,00	0,00	0,00
Ph.D. students	4,93	5,67	6,37
Total Research staff	12,64	13,76	14,70
<i>Markets & Organizations</i>	fte	2017	2018
			2019
WP 1 (first flow of funds)	4,09	5,31	5,03
WP 2 (second flow of funds)	0,53	0,00	0,07
WP 3 (third flow of funds)	0,00	0,00	0,00
Ph.D. students	1,87	2,54	2,27
Total Research staff	4,62	5,31	5,10
<i>SEO</i>	fte	2017	2018
			2019
WP 1 (first flow of funds)	0,00	0,00	0,00
WP 2 (second flow of funds)	0,00	0,00	0,00
WP 3 (third flow of funds)	32,14	28,51	37,07
Ph.D. students	0,00	0,00	0,00
Total Research staff	32,14	28,51	37,07

Table III: Ranks at programme level

Research programme	Hgl		Uhd		Ud		Oz		Pdoc		Ph.D.		Guest		Total	
	#	fte	#	fte	#	fte	#	fte	#	fte	#	fte	#	fte	#	fte
UvA-Econometrics	2	1,10	3	0,70	3	1,58	0	0,00	0	0,00	2	2,13	2	0,00	12	5,51
Equilibrium, expectations & dynamics	5	1,84	3	1,20	2	0,60	0	0,00	3	0,70	8	2,94	13	0,00	34	7,28
Actuarial science	3	1,10	0	0,00	6	2,63	0	0,00	0	0,10	3	1,07	7	0,00	19	5,00
MInt	8	2,30	0	0,50	5	2,13	0	0,00	2	0,03	7	4,81	12	0,00	34	9,77
Human Capital	5	2,36	0	0,00	2	1,30	4	0,80	0	0,00	3	1,60	3	0,00	17	6,06
Experimental & political economics	6	2,10	2	1,16	4	1,60	2	0,00	2	3,47	8	5,57	1	0,00	25	13,90
Markets & Organizations	4	1,00	1	0,96	5	0,87	0	0,00	0	0,00	3	2,27	0	0,00	13	5,10
SEO economic research	2	2,80	0	0,00	0	0,00	39	34,27	0	0,00	0	0,00	0	0,00	41	37,07
Total	35	14,60	9	4,52	27	10,71	45	35,07	7	4,30	34	20,39	38	0,00	195	89,59

* 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. Currently the entire research budget of the faculty of the first category of funds 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 sections hosting the research programmes based on their number of completed PhD theses and on research time allocated to their individual researchers. The budget allocated to the programmes 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.

3. RESULTS

3.1 Processes in Research, Internal and External Collaboration

Actual research management occurs 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 leader, 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.

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.

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

- Tinbergen Institute / CREED Seminars Series
- Tinbergen Institute Econometrics Seminars & Workshops Series
- Tinbergen Institute Organizations & Markets Double Seminars
- Tinbergen Institute Macro Seminars
- Tinbergen Institute Complexity-Macro Seminars
- Tinbergen Institute Complexity in Economics Seminar Series
- Tinbergen Institute PhD Lunch Seminars
- Actuarial Science & Mathematical Finance Seminar
- MInt PhD Lunch seminar series

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 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) 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 2015-2019

Cohort	2015	2016	2017	2018	2019
1st flow of fund projects	6	5,5	7	5	9
2nd flow of fund projects	1	1,5	2	3	1
3rd flow of fund projects	0	0	0	2	0
Total projects started	7	7	9	10	10

The inflow of PhD students stabilized around 8 in the years after 2015. In recent years the outflow of students from the Tinbergen Institute who completed their MPhil was sufficient to fill in all PhD vacancies. As can be seen in Table IV, most PhD projects concern the first flow of fund.

Figure I: Dissertations 2015-2019

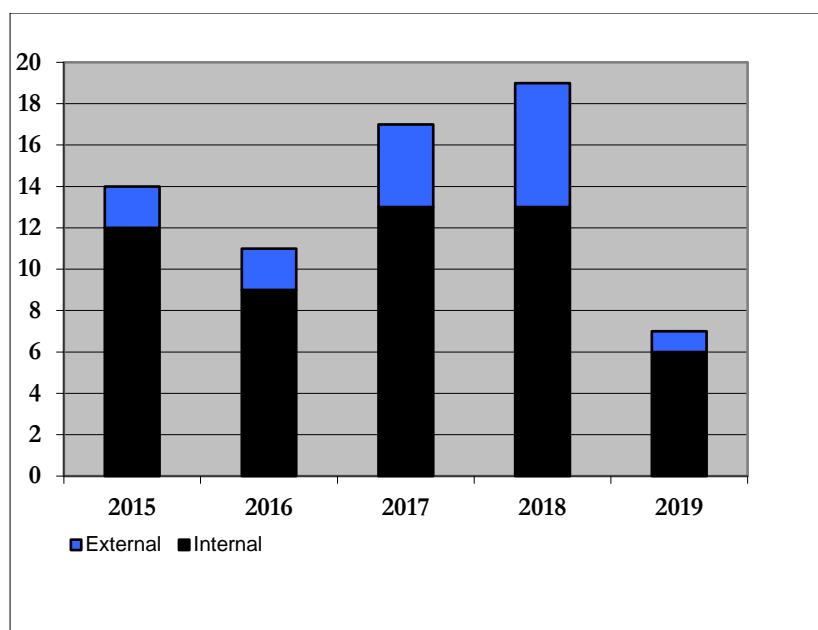


Table V: PhD completion rates

Cohort	2016		2017		2018		2019	
	#	%	#	%	#	%	#	%
PhD students graduated	19	100%	22	100%	29	100%	16	100%
within 60 months	11	58%	11	50%	11	38%	10	63%
within 48 months	6	32%	7	32%	6	21%	6	38%
Average duration (months)	49		57		60		56	

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. 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 and in the second/third flow of fund. 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.

Table VI: PhD placement

Year of dissertation	Top academic or high-profile international organisation		Other	
	#	%	#	%
2014	3	60	2	40
2015	7	54	6	46
2016	3	27	8	73
2017	6	46	7	54

2018	7	37	12	63
2019	3	43	4	57

Students with an ambition to develop a career in academia after finishing their PhD are actively encouraged to participate in TP'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. The group of PhD students that enter the programme through TP's MPhil programme is increasingly oriented towards the academic job market. Out of the 7 ASE-RI students who defended their PhD thesis in 2019, 43% 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 Research Output

Figure II: Scientific output 2013-2019

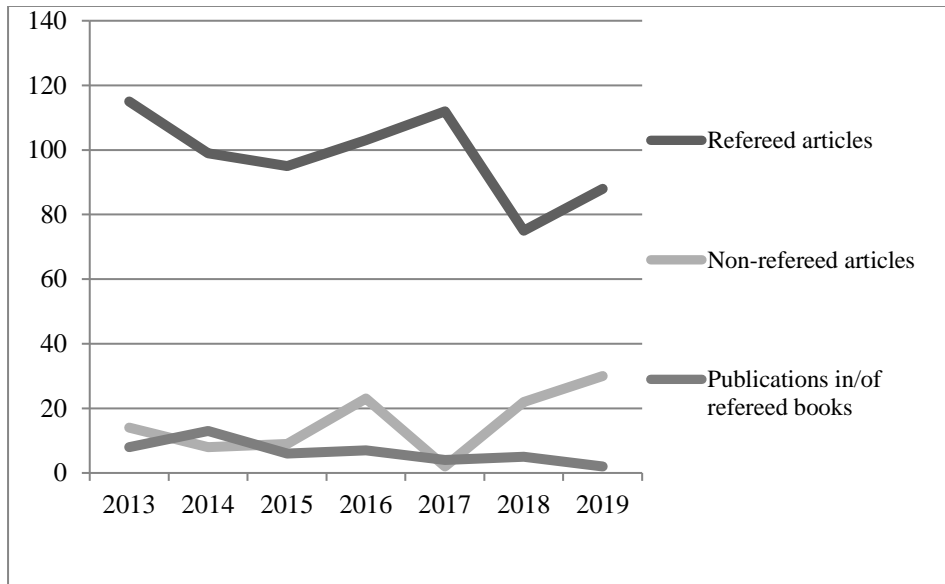


Figure II shows that after a decrease in 2014 and 2015, the scientific output increased again in 2016 and 2017. In 2018 a decrease is shown in refereed articles, but this number starts to increase again in 2019. From table 1 it can be seen that the research input (fte's) increased in 2019. As a result, the scientific output per research fte is equivalent to 2018. The number of refereed publications per research fte excluding PhD students was 1,36 in 2017 and decreased in 2018 to 1.03 and in 2019 to 1.02.

Table VII: Research output 2019

		UvA-e	EED	AS&MF	MInt	HUM	EPE	M&O	SEO	Total*
Articles in journals	refereed	8	20	8	7	5	21	7	12	88
	non-refereed	0	0	0	1	0	1	0	28	30
	professional	1	0	0	20	0	0	2	10	33
	popular	0	0	0	3	0	0	2	7	12
Books or book chapters	refereed	0	0	0	0	0	1	0	1	2
	non-refereed	0	0	0	0	0	0	0	0	0
	professional	0	0	0	0	0	0	0	0	0
	popular	0	0	0	0	0	0	0	0	0

Conference proceedings	non-refereed	0	1	0	0	0	0	0	0	1
Reports	non-refereed	0	0	0	0	0	0	0	88	88
PhD theses		0	4	2	0	0	1	0	1	8

* Duplications removed

See table VII for an overview of the output of the research groups. 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.¹ Table VII shows that the number of publications in top-refereed journals is lower than publications in other journals. The number of top publications per research fte excluding PhD students (see table I for data on research input) was 0,64 in 2017 and decreased significantly in 2018 to 0,39 and in 2019 to 0,33.

Table VII: Refereed articles 2017-2019

	2017		2018		2019		
	Top	Other	Top	Other	Top	Other	
UvA-Econometrics	1	5	4	7	4	4	
Equilibrium, Expectations and Dynamics	8	8	2	9	7	13	
Actuarial Science & Mathematical Finance	3	13	4	9	2	6	
Macro and International Economics	2	12	1	9	1	6	
Human Capital	6	1	7	0	1	4	
Experimental & Political Economics	23	9	11	7	10	11	
Markets & Organizations	10	3	5	0	5	2	
SEO	4	10	2	6	0	12	
Total ASE-RI*	(#)	53	59	31	46	30	58
	(%)	47	53	40	60	34	66

*duplications removed

3.4 Academic Reputation

The 2019 QS World University Rankings by Subject puts the UvA in 2nd rank in the Netherlands and 51st worldwide for the discipline Economics and Econometrics.² In the ESB Economen-top 40 of 2019, UvA ranked 6th in the Netherlands and two ASE researchers, Thomas Buser and Hessel Oosterbeek, ranked 1st and 3rd in the individual ranking³.

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

¹ All journals with an Article Influence percentile score of ≥ 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.

² <https://www.topuniversities.com/university-rankings/university-subject-rankings/2019/economics-econometrics>

³ <https://esb.nu/esb/20056809/economtop-40-2019>

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.

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.

4. RESEARCH PRIORITY AREA: BEHAVIOURAL ECONOMICS

4.1 Design

The Research Priority Area Behavioural Economics aims to improve our understanding of economic behaviour and decision making, with effective applications in governance, institutional arrangements and policy. It seeks to integrate into traditional economic theory insights from cognitive science, sociology and (neuro)biology. Going beyond traditional economic theories that assume rationality and narrow self-interest, RPA-BE (i) takes seriously social preferences, emotions and bounded rationality, using (ii) the methodological rigour developed in the economic sciences, including its experimental methods, econometric techniques and (game) theoretic modelling.

Research in Behavioural Economics has a strong empirical foundation; data are gathered in laboratory or field experiments. The Research Priority Area therefore invests in facilities and funding for laboratory and field-experimental research, and organizes internal seminars in which researchers comment on each other's plans (compulsory for funding), annual workshops, and international visits from or to co-authors. The Research Priority Area plays an active role in the dissemination of knowledge on behavioural economics.

4.2 Evaluation

After its major success in 2014, when the Research Priority Area Behavioural Economics succeeded in acquiring (ongoing) 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 (again ongoing) grant similar in size on the basis of the proposal "Complex Human System Labs".

In 2018, the new communication lab was up and running, which made it possible to run a new series of experiments in which various modes of communication were successfully implemented and studied. The communication lab hosted a very successful conference in which some scholars participated who are leading the field of communication and economic decision making. The communication lab also successfully hired a new tenure tracker from NYU, Natalie Lee, who has started in September 2019. In 2018, the Complex Human System Labs edited a new book on Computational Economics.

4.3 Output

Our research is mostly published in journals that are considered top in the field of Behavioral Economics (Experimental Economics, Games and Economic Behavior, Journal of Economic Theory, Journal of Economic Dynamics and Control, Management Science) and sometimes in top general audience economics journals, such as American Economic Review and Quarterly Journal of Economics. Fitting our aim to facilitate and promote interdisciplinary out-reach, our work is also published in top-rated journals in adjacent disciplines (e.g., Journal of Personality and Social Psychology, Psychological Bulletin, Journal of Theoretical Biology). A remarkable trend is the sharp increase in publications in top general science journals such as Science and Proceedings of National Academy of Sciences.

B

THE RESEARCH PROGRAMMES

5. UvA-ECONOMETRICS

Programme director: Prof. dr. F.R. Kleibergen
 Section: Quantitative Economics
 JEL-classification: C1, C2, C3, C4, C5
 Starting date: 1997
 Website: www.ase.uva.nl/uva-econometrics

5.1 Members of the research group and research in ftes

<i>Name</i>	<i>Title</i>	<i>Function</i>	<i>Total 2017</i>	<i>Total 2018</i>	<i>Total 2019</i>	<i>Funding</i>
Aristodemou, E.	dr.	ud	0,50	0,50	0,60	1
Boswijk, H.P	prof. dr.	hgl	0,50	0,50	0,50	1
Broda, S.A.	dr.	ud	0,50	0,08	0,00	1
Bun, M.	dr.	uhd	-	-	-	2
Bun, M.	dr.	uhd	0,11	0,11	0,00	1
Garderen, K.J. van	dr.	uhd	0,00	0,07	0,20	1
Giersbergen, N.P.A. van	dr.	ud	0,00	0,07	0,20	1
Gooijer, J.G. de	prof. dr.	guest	0,00	0,00	0,00	1
He, Y.	dr.	ud	-	-	0,20	1
Janssens, E.	msc	phd	-	0,27	0,80	1
Keijsers, B.	dr.	ud	-	0,25	0,58	1
Kiviet, J.F.	prof. dr.	guest	0,00	0,00	0,00	1
Kleibergen, F.R.	prof. dr.	hgl	0,60	0,60	0,60	1
Kong, L.	msc	phd	0,80	0,80	0,53	1
Ophem, J.C.M. van	dr.	uhd	0,33	0,50	0,50	1
Stephan, S.	msc	phd	0,80	0,80	0,53	1
Vladimirov, E.	msc	phd	-	-	0,27	1
Total 1st flow of funds			4,14	4,55	4,78	
Total 2nd flow of funds			0,00	0,00	0,00	
Total 3rd flow of funds			0,00	0,00	0,00	
Total 1st f.o.f. excl. Ph.D.'s			2,54	2,68	2,65	
Total 1st-3rd flow of funds			4,14	4,55	4,78	
Ph.D. students			1,60	1,87	2,13	

5.2 Programme design

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 programma

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 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.

There is a rising interest in what data science methods have to offer for econometrics. Research is therefore being developed which explores the contributions of data science, like forest methods, to econometrics.

5.3 Programme Evaluation

The output of the research group is not appropriately spread over its members since it primarily results from a smaller sub group. We expect that the new tenure tracker 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, 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 website (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.

There are currently three PhD students: Lingwei Kong, Sanna Stephan and Eva Janssens. Two more will likely start in September 2020. Lingwei Kong and Sanna Stephan will hand in their theses in 2021.

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. One senior member of the group Maurice Bun has largely left for the DNB. Over the last two years, two new tenure trackers Bart Keijsers from EUR and Yi He from Monash University have been hired. Simon Broda and Eleni Aristodemou will leave in 2020 and three new tenure trackers will start in 2020/2021: Sander Barendse from Oxford University, Arturas Juodis from the University of Groningen and Mario Rothfelder from Tilburg University. It is hard to attract tenure trackers from the job market given the not very competitive offers we can make.

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. Some senior member therefore decided to leave and it is not ruled out that others will follow. To counter this a new initiative has been made by ASE-RI to temporarily award research time to those with currently don't have any based on a research proposal.

5.4 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.

5.5 Output

Key publications

Boswijk, H.P, Jansson, M. & Nielsen, M.Ø. (2015). Improved likelihood ratio tests for cointegration rank in the VAR model. *Journal of Econometrics*, 184 (1), 97–110.

Boswijk, H.P., G. Cavaliere, A. Rahbek and A.M. Taylor (2016), Inference on co-integration parameters in heteroskedastic vector autoregressions. *Journal of Econometrics*, 192 (1), 64-85.

Boswijk, H. P., Bun, M. J. G., & Schinkel, M. P. (2019). Cartel Dating. *Journal of Applied Econometrics*, 34(1), 26-42. <https://doi.org/10.2139/ssrn.2860613>, <https://doi.org/10.1002/jae.2660>

Guggenberger, P., Kleibergen, F., Mavroeidis, S. & Chen, L. (2012). On the asymptotic sizes of subset Anderson-Rubin and Lagrange multiplier tests in linear instrumental variables regression. *Econometrica* 80, 2649–2666.

Van Ophem, H., Van Giersbergen, N., van Garderen, K. J., & Bun, M. (2019). The cyclicity of R&D investment revisited. *Journal of Applied Econometrics*, 34(2), 315-324. <https://doi.org/10.1002/jae.2667>

Kleibergen, FR, Guggenberger, P & Mavroeidis, S 2019, 'A more powerful subvector Anderson-Rubin test in linear instrumental variables regression', *Quantitative Economics*, pp. 487. <https://doi.org/10.3982/QE1116>

Forthcoming

Broda, SA 2019, 'Testing for individual sphericity in heterogeneous panels', *Biometrika*, vol. 106, no. 3, pp. 740-747. <https://doi.org/10.1093/biomet/asz018>

Kleibergen, F & Zhan, Z 2020, 'Robust Inference for Consumption-Based Asset Pricing', *The Journal of Finance*, vol. 75, no. 1, pp. 507-550. <https://doi.org/10.1111/jofi.12855>

Sirchenko, A 2019, 'A model for ordinal responses with heterogeneous status quo outcomes', *Studies in Nonlinear Dynamics and Econometrics*. <https://doi.org/10.1515/snde-2018-0059>

Publications in numbers

Output type	Classification	#
Articles in journals	Refereed	8
	Non-refereed	0
	Professional	1
	Popular	0
Books or book chapters	Refereed	0
	Non-refereed	0
	Professional	0
	Popular	0

Conference proceeding	0
PhD theses	0
Total	9

Article in journal – refereed

Boswijk, HP, Bun, MJG & Schinkel, MP 2019, 'Cartel Dating', *Journal of Applied Econometrics*, vol. 34, no. 1, pp. 26-42. <https://doi.org/10.2139/ssrn.2860613>, <https://doi.org/10.1002/jae.2660>

Broda, SA 2019, 'Testing for individual sphericity in heterogeneous panels', *Biometrika*, vol. 106, no. 3, pp. 740-747. <https://doi.org/10.1093/biomet/asz018>

Kessels, R & Erreygers, G 2019, 'A direct regression approach to decomposing socioeconomic inequality of health', *Health Economics*, vol. 28, no. 7, pp. 884-905. <https://doi.org/10.1002/hec.3891>

Kleibergen, FR, Guggenberger, P & Mavroeidis, S 2019, 'A more powerful subvector Anderson-Rubin test in linear instrumental variables regression', *Quantitative Economics*, pp. 487. <https://doi.org/10.3982/QE1116>

Luyten, J, Kessels, R, Desmet, P, Goos, P & Beutels, P 2019, 'Priority-Setting and Personality: Effects of Dispositional Optimism on Preferences for Allocating Healthcare Resources', *Social Justice Research*, vol. 32, no. 2, pp. 186-207. <https://doi.org/10.1007/s11211-019-00329-5>

Luyten, J, Kessels, R, Atkins, KE, Jit, M & van Hoek, AJ 2019, 'Quantifying the public's view on social value judgments in vaccine decision-making: A discrete choice experiment', *Social Science & Medicine*, vol. 228, pp. 181-193. <https://doi.org/10.1016/j.socscimed.2019.03.025>

van Ophem, H, van Giersbergen, N, van Garderen, KJ & Bun, M 2019, 'The cyclicity of R&D investment revisited', *Journal of Applied Econometrics*, vol. 34, no. 2, pp. 315-324. <https://doi.org/10.1002/jae.2667>

Verelst, F, Kessels, R, Delva, W, Beutels, P & Willem, L 2019, 'Drivers of vaccine decision-making in South Africa: A discrete choice experiment', *Vaccine*, vol. 37, no. 15, pp. 2079-2089. <https://doi.org/10.1016/j.vaccine.2019.02.056>

Professional publications

Abbring, J, Boswijk, P & van Soest, A 2019, 'Nobelprijzen in de Econometrie', *TPEdigitaal*, vol. 13, no. 1, pp. 3-12.

Activities

Talk or presentation

Eleni Aristodemou (Speaker), Semiparametric identification in panel data discrete response models, 5 Apr 2019.

Frank Kleibergen (Keynote speaker), Identification Robust Testing of Risk Premia in Finite Samples, 13 Jun 2019. Hall White Memorial Lecture, World Meeting of the Society of Financial Econometrics.

Frank Kleibergen (Speaker), Robust inference for consumption-based asset pricing, 15 Jun 2019.

Eleni Aristodemou (Speaker), Binary Response Dynamic Panel Data Models with Switching Dependence, 26 Jun 2019.

Eleni Aristodemou (Speaker), Binary Response Dynamic Panel Data Models with Switching Dependence, 4 Jul 2019.

Frank Kleibergen (Speaker), Robust inference for consumption-based asset pricing, 4 Jul 2019.

Frank Kleibergen (Invited speaker), Identification Robust Testing of Risk Premia in Finite Samples, 7 Oct 2019.

Frank Kleibergen (Invited speaker), Identification Robust Testing of Risk Premia in Finite Samples, 9 Oct 2019.

Yi He (Speaker), Rethinking Extreme Value Statistics, 25 Nov 2019.

Yi He (Speaker), Most powerful quadratic test against high dimensional free alternatives, 14 Dec 2019 → 16 Dec 2019.

Frank Kleibergen (Organiser), 30-th EC-squared conference, 13 Dec 2019 → 14 Dec 2019.

Editorial work

Kleibergen, F.R. (Member of editorial board), Journal of Econometrics (Journal)

Kleibergen, F.R. (Member of editorial board), Journal of Financial Econometrics (Journal)

Frank Kleibergen (Member of programme committee), 2019 IAAE Annual Conference, 1 Mar 2019 → 1 Apr 2019

Frank Kleibergen (Member of programme committee), 2019 World conference of the society of financial econometrics, 1 Mar 2019 → 1 Apr 2019

6. EQUILIBRIUM, EXPECTATIONS & DYNAMICS

Subprogrammes:	EU Horizon 2020, Bridging the gap: from Individual Behaviour to the Socio-technical MaN (IBSEN); Institute of New Economic Thinking (INET), Marie Curie Innovative Training Network, Expectations and Social Influence Dynamics in Economics (ExSIDE). NWO ORA Behavioral and Experimental Analysis in Macro-Finance (BEAM)
Programme director:	Prof. dr. C.G.H. Diks
Section:	Quantitative Economics
JEL-Classification:	C, D, E6
Starting date:	1998
Website:	http://cendef.uva.nl

6.1 Members of the research group and research in FTEs

<i>Name</i>	<i>Title</i>	<i>Function</i>	<i>Total 2017</i>	<i>Total 2018</i>	<i>Total 2019</i>	<i>Funding</i>
Altaghlibi, M.	msc	guest	0,00	-	-	1
Arioli, R.	msc	guest	-	-	0,00	1
Amman, H.M.	prof. dr.	hgl	0,00	0,00	0,00	1
Basurto, A.	msc	guest	-	-	0,00	1
Cafferata, A.	msc	guest	0,00	0,00	-	1
Diks, C. (CeNDEF)	prof. dr.	hgl	0,50	0,50	0,50	1
Fang, H.	msc	phd	0,53	-	-	1
Fang, H.	dr.	guest	-	0,00	0,00	1
Goy, G.	msc	phd	0,80	0,20	-	1
Goy, G.	dr.	guest	-	0,00	0,00	1
Hennequin, M.	msc	postdoc	0,80	0,53	0,53	1
Hennequin, M.	msc	guest	-	0,00	-	1
Hommes, C.H. (CeNDEF)	prof. dr.	hgl	0,56	0,70	0,70	1
Hommes, C.H. (CeNDEF)	prof. dr.	hgl	0,10	-	-	2
Huber, S.	dr.	ud	0,17	0,50	0,60	1
Jong, J. de	msc	phd	0,27	0,80	0,80	1
Kopányi, D.	dr.	postdoc	0,80	0,80	-	2
Kopányi, D.	dr.	guest	-	-	0,00	1
Kopányi-Peuker, A.	dr.	postdoc	0,80	0,80	-	2
Kopányi-Peuker, A.	dr.	guest	-	-	0,00	1
Koster, M.A.L.	dr.	uhd	0,00	0,07	0,20	1
Leij, M. van der	dr.	ud	0,13	-	-	1
Leij, M. van der	dr.	uhd	0,37	0,50	0,50	1
Levelt, E.	msc	phd	0,27	1,00	0,34	2
Li, H.	msc	guest	0,00	0,00	0,00	1
Linardi, F.	msc	guest	0,00	-	-	1
Lustenhouwer, J.	msc	phd	0,53	-	-	2
Makarewicz, T.	dr.	postdoc	0,53	-	-	2
Makarewicz, T.	dr.	postdoc	-	-	-	1
Meertens, Q.	msc	guest	0,00	-	-	1
Moghayer, S.	dr.	guest	-	0,00	-	1
Negri, A.	msc	guest	-	-	0,00	1
Ozden, T.	msc	phd	0,27	0,80	0,80	1

Ramer, R.	dr.	guest	0,00	0,00	0,00	1
Ruiter, A.	drs.	guest	0,00	0,00	0,00	1
Salle, I.	dr.	postdoc	-	-	0,17	2
Salle, I.	dr.	guest	0,00	0,00	0,00	1
Sloot, P.	prof. dr.	hgl	0,21	0,21	0,14	1
Tuinstra, J. (CeNDEF)	prof. dr.	hgl	0,50	0,50	0,50	1
Turco, E.	msc	phd	0,27	1,00	1,00	1
Wagener, F. (CeNDEF)	dr.	uhd	0,50	0,50	0,50	1
Wang, J.	msc	guest	0,00	0,00	0,00	1
Wolski, M.	msc	guest	0,00	0,00	0,00	1
Total 1st flow of funds			5,88	6,81	6,77	
Total 2nd flow of funds			3,03	2,60	0,51	
Total 3rd flow of funds			0,00	0,00	0,00	
Total 1st f.o.f. excl. Ph.D.'s			2,94	2,48	4,17	
Total 1st-3rd flow of funds			8,91	9,41	7,28	
Ph.D. students			3,74	4,33	2,94	

6.2 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.

6.3 Programme evaluation

Historical background: this programme grew out of a mathematical economics program *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 Pionier grant awarded to Hommes, to set up the Center for Nonlinear Dynamics in Economics and Finance (CeNDEF). At that time the program changed from a small specialized mathematical economics program into a multi-disciplinary research program 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 program. 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 program was ranked as one of the three top programs 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 2019 is very good. The output includes 21 articles in international refereed journals, amongst which publications in the Journal of Monetary Economics, the Journal of the European Economic Association, Journal of Economic Theory and the Journal of Business and Economic Statistics and, among others, manuscripts that were accepted for publication in the Journal of Economic Literature and the Journal of Monetary Economics. Four PhD students successfully defended their PhD theses in 2019.

The programme is internationally established, as is shown by excellent citation statistics (e.g. according to the Science Citation Index (SCI) in 2019 alone, 900 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 (<https://ideas.repec.org/top/top.netherlands.html>), CeNDEF ranks number 11, as 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.

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 over 650 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 getting accepted only slowly; the number of links with practitioners and policy makers has been relatively low, but is 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, there are close collaborations with the UvA Institute for Advanced Study, Statistics Netherlands and 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.

6.4 Resources and Funding

The budget received from ASE-RI covers on average one conference per researcher per year. A budget of the Faculty covers 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 for individual PhD students (NWO Talent grants). Moreover, ***CeNDEF is part of several international consortia that obtained grants:***

- A grant (297,000 euro for Dutch team) has been obtained from the Open Research Area joint funding scheme 2015 for “Behavioral and Experimental Analyses in Macro-finance” (BEAM) (project leaders: Nobuyuki Hanaki, Martin Weber and Jan Tuinstra, September 2016 –August 2019).
- An Additional Research Priority Area grant Complex Human Systems Lab (300,000 euro per year from 2016 onwards) has been obtained from the University of Amsterdam.
- For 2017-2020 funding has been obtained in a Marie Curie Innovative Training Network “Expectations and Social Influence Dynamics in Economics (ExSIDE)”, allowing for 5 additional PhD positions (on mobility track basis) within the program from September 2017.
- For 2021-2024 funding has been obtained for a Marie Innovative Training Network “Economic Policy in a Complex Environment” (EPOC), allowing for 3 additional PhD positions (on mobility track basis) within the program from September 2021.

6.5 Output

Key publications

Cornea-Madeira, A., Hommes, C. & Massaro, D. (2019), 'Behavioral Heterogeneity in U.S. Inflation Dynamics', *Journal of Business & Economic Statistics*, vol. 37, no. 2, pp. 288-300.

<https://doi.org/10.1080/07350015.2017.1321548>

Kopányi-Peuker, A. G., Offerman, T., & Sloof, R. (2018). Team production benefits from a permanent fear of exclusion. *European Economic Review*, 103, 125-149. DOI: [10.1016/j.eurocorev.2018.01.005](https://doi.org/10.1016/j.eurocorev.2018.01.005)

Bao, T., Hommes, C., & Makarewicz, T. (2017). Bubble formation and (in)efficient markets in learning-to-forecast and optimise experiments. *Economic Journal*, 127(605), F581-F609.

Battiston, S., Farmer, J.D., Flache, A., Garlaschelli, D., Haldane, A.G., Heesterbeek, H., Hommes, C., Jaeger, C., May, R. and Scheffer, M. (2016). Complex Systems: Complexity theory and financial regulation. *Science* 351, 818-819.

Diks, C. and Wolski, M. (2016). Nonlinear Granger Causality: Guidelines for Multivariate Analysis. *Journal of Applied Econometrics* 31, 1333-1351.

Dockner, E. and Wagener, F. (2014). Markov perfect Nash equilibria in models with a single capital stock. *Economic Theory* 56, 585-625.

Forthcoming

Amman, HM & Tucci, MP 2020, 'How Active is Active Learning: Value Function Method Versus an Approximation Method', *Computational Economics*. <https://doi.org/10.1007/s10614-020-09968-2>

Assenza, T., Heemeijer, P., Hommes, C.H. & Massaro, D. (2020). Managing self-organization of expectations through monetary policy: a macro experiment, *Journal of Monetary Economics*.

Bao, T., Hennequin, M., Hommes, C.H. and Massaro, D. (2020), Coordination on bubbles in large group asset pricing experiments, *Journal of Economic Dynamics & Control*.

Ellen, ter, S., Hommes, C.H. and Zwinkels, R. (2020), Comparing behavioural heterogeneity across asset classes, *Journal of Economic Behavior & Organization*.

Diks, C.G.H. & Fang, H. (2020), 'Comparing density forecasts in a risk management context', *International Journal of Forecasting*. <https://doi.org/10.1016/j.ijforecast.2019.07.006>

Hommes, C.H. (2020), Behavioral & experimental macroeconomics and policy analysis: a complex systems approach, *Journal of Economic Literature*.

Linardi, F., Diks, C., van der Leij, M.J. & Lazier, I. (2020), 'Dynamic interbank network analysis using latent space models', *Journal of Economic Dynamics & Control*. <https://doi.org/10.1016/j.jedc.2019.103792>

Meertens, Q.A., Diks, C.G.H., van den Herik, H.J. & Takes, F.W. (2020), 'A data-driven supply-side approach for estimating cross-border Internet purchases within the European Union', *Journal of the Royal Statistical Society. Series A: Statistics in Society*, vol. 183, no. 1, pp. 61-90. <https://doi.org/10.1111/rssa.12487>

Ruiter, A. (2020), Approximating Walrasian Equilibria, *Computational Economics* 55, 577-596.

Publications in numbers

Output type	Classification	#
Articles in journals	Refereed	20
	Non-refereed	0
	Professional	0
	Popular	0

Books or book chapters	Refereed	0
	Non-refereed	0
	Professional	0
	Popular	0
Conference proceedings		1
PhD theses		4
Total		25

Article in journal – refereed

Altaghlibi, M. & Wagener, F. (2019), 'Unconditional aid and green growth', *Journal of Economic Dynamics & Control*, vol. 105, pp. 158-181. <https://doi.org/10.1016/j.jedc.2019.06.006>

Anufriev, M., Bao, T., Sutan, A. & Tuinstra, J. (2019), 'Fee structure and mutual fund choice: An experiment', *Journal of Economic Behavior & Organization*, vol. 158, pp. 449-474. <https://doi.org/10.1016/j.jebo.2018.12.013>

Anufriev, M., Hommes, C. & Makarewicz, T. (2019), 'Simple Forecasting Heuristics that Make us Smart: Evidence from Different Market Experiments', *Journal of the European Economic Association*, vol. 17, no. 5, pp. 1538-1584. <https://doi.org/10.1093/jeea/jvy028>

Arifovic, J., Hommes, C. & Salle, I. (2019), 'Learning to believe in simple equilibria in a complex OLG economy - evidence from the lab', *Journal of Economic Theory*, vol. 183, pp. 106-182. <https://doi.org/10.1016/j.jet.2019.05.001>

Bao, T. & Hommes, C. (2019), 'When speculators meet suppliers: Positive versus negative feedback in experimental housing markets', *Journal of Economic Dynamics and Control*, vol. 107, 103730. <https://doi.org/10.1016/j.jedc.2019.103730>

Bolt, W., Demertzis, M., Diks, C., Hommes, C. & van der Leij, M. (2019), 'Identifying booms and busts in house prices under heterogeneous expectations', *Journal of Economic Dynamics & Control*, vol. 103, pp. 234-259. <https://doi.org/10.1016/j.jedc.2019.04.003>

Cornea-Madeira, A., Hommes, C. & Massaro, D. (2019), 'Behavioral Heterogeneity in U.S. Inflation Dynamics', *Journal of Business & Economic Statistics*, vol. 37, no. 2, pp. 288-300. <https://doi.org/10.1080/07350015.2017.1321548>

Diks, C.G.H., Hommes, C.H. and Wang, J. (2019), 'Critical slowing down as early warning signals for financial crises?', *Empirical Economics*, 57: 1201-1228. <https://doi.org/10.1007/s00181-018-1527-3>

Hommes, C., Massaro, D. & Salle, I. (2019), 'Monetary and Fiscal Policy Design at the Zero Lower Bound: Evidence from the Lab', *Economic Inquiry*, vol. 57, no. 2, pp. 1120-1140. <https://doi.org/10.1111/ecin.12741>

Hommes, C., Massaro, D. & Weber, M. (2019), 'Monetary policy under behavioral expectations: Theory and experiment', *European Economic Review*, vol. 118, pp. 193-212. <https://doi.org/10.1016/j.euroecorev.2019.05.009>

Hommes, C. & Lustenhouwer, J. (2019), 'Inflation targeting and liquidity traps under endogenous credibility', *Journal of Monetary Economics*, vol. 107, pp. 48-62. <https://doi.org/10.1016/j.jmoneco.2019.01.027>

Hommes, C. & Lustenhouwer, J. (2019), 'Managing unanchored, heterogeneous expectations and liquidity traps', *Journal of Economic Dynamics and Control*, vol. 101, pp. 1-16. <https://doi.org/10.1016/j.jedc.2019.01.004>

Hommes, C. & Vroegop, J. (2019), 'Contagion between asset markets: A two market heterogeneous agents model with destabilising spillover effects', *Journal of Economic Dynamics and Control*, vol. 100, pp. 314-333. <https://doi.org/10.1016/j.jedc.2018.10.005>

Jump, R.C., Hommes, C. & Levine, P. (2019), 'Learning, heterogeneity, and complexity in the New Keynesian model', *Journal of Economic Behavior and Organization*, vol. 166, pp. 446-470.

<https://doi.org/10.1016/j.jebo.2019.07.014>

Kopányi, D., Rabanal, J. P., Rud, O. A. & Tuinstra, J. (2019), 'Can competition between forecasters stabilize asset prices in learning to forecast experiments?', *Journal of Economic Dynamics & Control*, vol. 109, 103770. <https://doi.org/10.1016/j.jedc.2019.103770>

Kopányi-Peuker, A. (2019): Yes, I'll do it: A large-scale experiment on the volunteer's dilemma. *Journal of Behavioral and Experimental Economics*, Vol. 80., pp. 211-218. <https://doi.org/10.1016/j.socec.2019.04.004>

Koster, M. & Boonen, T. J. (2019), 'Constrained stochastic cost allocation', *Mathematical Social Sciences*, vol. 101, pp. 20-30. <https://doi.org/10.1016/j.mathsocsci.2019.06.002>

Salle, I., Sénégas, M.-A. & Yıldızoğlu, M. (2019), 'How transparent about its inflation target should a central bank be? An agent-based model assessment', *Journal of Evolutionary Economics*, vol. 29, no. 1, pp. 391-427. <https://doi.org/10.1007/s00191-018-0558-4>

Salle, I., Seppecher, P. and Lang, D. (2019), Is the market really a good teacher? Market selection, collective adaptation and financial instability, *Journal of Evolutionary Economics* 29 (1), 299-33. <https://doi.org/10.1007/s00191-018-0571-7>

Smrkolj, G. & Wagener, F. (2019), 'Research among copycats: R&D, spillovers, and feedback strategies', *International Journal of Industrial Organization* 65, 82-120.

<https://doi.org/10.1016/j.ijindorg.2019.02.002>

Conference paper

Meertens, Q. A., Diks, C.G.H., van den Herik, H.J. & Takes, F.W. (2019), A Bayesian Approach for Accurate Classification-Based Aggregates. in T. Berger-Wolf & N. Chawla (eds), Proceedings of the 2019 SIAM International Conference on Data Mining. Philadelphia, PA, pp. 306-314, SIAM International Conference on Data Mining, Calgary, Alberta, Canada, 2/05/19.

<https://doi.org/10.1137/1.9781611975673.35>

Dissertation – internally prepared

Goy, G. (2019). Modern Challenges to Monetary Policy.

Hennequin, M. (2019). Expectations and bubbles in asset market experiments.

Linardi, F. (2019). Empirical Essays on the Stability of the Brazilian Financial System.

Negriu, A. (2019). On The Economics of Institutions and Technology: A Computational Approach.

Activities

Talk or presentation

Jan Tuinstra (Speaker), Prices vs. returns in Learning-to-Forecast experiments, 11 Jan 2019.

Marco van der Leij (Speaker), On the Influence of Top Journals, 28 Apr 2019.

Jan Tuinstra (Speaker), Price volatility and forecasting horizons: An experimental investigation, 3 May 2019.

Marco van der Leij (Speaker), On the Influence of Top Journals, 7 May 2019.

Marco van der Leij (Speaker), On the Influence of Top Journals, 8 May 2019.

Johan de Jong (Speaker), The Effect of Futures Markets on the Price Dynamics in Commodity Markets, 11 May 2019.

Johan de Jong (Speaker), Can selection effects prevent bank runs?, 16 May 2019.

Johan de Jong (Speaker), Can selection effects prevent bank runs?, 23 May 2019.

Florian Wagener (Speaker), Enlisting Poincaré to Save the World: Geometry and the Economic Impact of Ecological Systems with Tipping Points, 23 May 2019.

Steffi Huber (Speaker), Gender Norms and the Gender gap in Higher education, 24 May 2019.

Florian Wagener (Speaker), Known and unknown rivals, 27 May 2019.

Johan de Jong (Speaker), Can selection effects prevent bank runs?, 3 Jun 2019.

Cees Diks (Participant), Econometric Institute International PhD Conference (Discussant), 4 Jun 2019.

Myrna Hennequin (Speaker), Experiences and expectations in asset markets: an experimental study, 4 Jun 2019.

Aad Ruiten (Speaker), Understanding trading at all prices, 10 Jun 2019.

Myrna Hennequin (Speaker), Experiences and expectations in asset markets: an experimental study, 13 Jun 2019.

Steffi Huber (Speaker), Discussion of Paper, 17 Jun 2019.

Florian Wagener (Speaker), Complexiteit en Economie, 20 Jun 2019.

Steffi Huber (Speaker), Gender Norms and the Gender Gap in Higher Education, 25 Jun 2019.

Jan Tuinstra (Speaker), Price volatility and forecasting horizons: An experimental investigation, 25 Jun 2019.

Jan Tuinstra (Speaker), Time pressure in long run learning-to-forecast experiments, 25 Jun 2019.

Enrico Turco (Speaker), 16th Annual STOREP Conference, 27 Jun 2019.

Steffi Huber (Speaker), Housing Consumption and the Bubble Size, 28 Jun 2019 → 30 Jun 2019.

Marco van der Leij (Speaker), On the Influence of Top Journals, 28 Jun 2019.

Myrna Hennequin (Speaker), Experiences and expectations in asset markets: an experimental study, 29 Jun 2019.

Steffi Huber (Speaker), Housing Consumption and the Bubble Size, 5 Jul 2019 → 7 Jul 2019.

Myrna Hennequin (Speaker), Experiences and expectations in asset markets: an experimental study, 6 Jul 2019.

Jan Tuinstra (Speaker), Coupled cobweb markets, 12 Jul 2019.

Enrico Turco (Speaker), Poznań Summer School in Heterodox Economics, 7 Aug 2019.

Myrna Hennequin (Speaker), Experiences and expectations in asset markets: an experimental study, 28 Aug 2019.

Marco van der Leij (Speaker), Dynamic interbank network analysis using latent space models, 10 Sep 2019.

Johan de Jong (Speaker), Can selection effects prevent bank runs?, 26 Sep 2019.

Enrico Turco (Participant), Agent-Based Simulation Modelling in Economics, 14 Oct 2019.

Marco van der Leij (Speaker), On the Influence of Top Journals, 16 Oct 2019.

Marco van der Leij (Speaker), On the Influence of Top Journals, 17 Oct 2019.

Steffi Huber (Speaker), Gender Norms and the Gender Gap in Higher Education, 24 Oct 2019.

Steffi Huber (Speaker), Housing Booms and Busts – Convergence and Divergence in OECD countries, 15 Dec 2019.

Enrico Turco (Speaker), International Conference Minsky at 100, 16 Dec 2019.

Marco van der Leij (Organiser), I. Lindner (Organiser), J.R. van den Brink (Organiser), Dutch Network Economics Day 2019, 17 Oct 2019.

Cees Diks (Organiser), Sbs@UvA Simulation-based Science for Financial Risk Management, 29 Nov 2019.

Isabelle Salle (Speaker): Workshop on Theoretical and Experimental Macro, June 25-26; Bank of Canada; CEF Conference, June 28-30, Ottawa; ESA world meeting, July 4-7, Vancouver, Canada; Dynare conference, Sept. 6-8, Lausanne, CH

Isabelle Salle (Invited speaker), Oxford INET, May 14; U. Nice, Nov. 25.

Alex Grimaud (Speaker), 22nd Central Bank Macroeconomic Modeling Workshop, Sept. 11-13, Dilijan,

Alex Grimaud (Speaker), SNB Research Conference, Sept. 20-21, Zurich.

Publication peer-review and editorial work

Marco van der Leij (Member of editorial board), Network Science (Journal)

Marco van der Leij (Reviewer), Economics Bulletin, Economic Journal, Empirical Economics, IRU Journal: ICT Discoveries, Journal of Economic Dynamics & Control, Journal of Financial Stability, Journal of Institutional and Theoretical Economics, Sciences advances, The Journal of Network Theory in Finance.

Florian Wagener (Editor), Dynamic Games and Applications (Journal)

Marco van der Leij (Programme Committee Member), Complex Networks 2019 (Event), 9 Apr 2019 → 12 Dec 2019

Isabelle Salle (Reviewer), JEIC, Industrial and Corporate Change, Economic Inquiry, JMCB, JEDC, JEBO.

7. ACTUARIAL SCIENCE & MATHEMATICAL FINANCE

Programmeme director: Prof. dr. ir. M.H. Vellekoop
 Section: Quantitative Economics
 JEL-classification: C, G2
 Starting date: 1989
 Website: www.ase.uva.nl/act

7.1 Members of the research group and research in fte's

<i>Name</i>	<i>Title</i>	<i>Function</i>	<i>Total 2017</i>	<i>Total 2018</i>	<i>Total 2019</i>	<i>Funding</i>
Antonio, K.	dr.	ud	0,10	0,10	0,10	1
Berkum, F. van	msc	ud	0,11	0,11	0,11	1
Bilsen, S. van	dr.	ud	0,25	0,25	0,21	1
Bilsen, S. van	dr.	ud	0,30	0,50	0,50	3
Boonen, T.	dr.	ud	0,50	0,50	0,50	1
Can, U.	dr.	ud	0,50	0,50	0,50	1
Doff, R.R.	dr.	guest	0,00	-	-	1
Engel, K.	msc	guest	0,00	0,00	0,00	1
Gastel, L. van	dr.	ud	0,08	0,07	0,11	3
Hooijisma, J.	msc	phd	0,27	-	-	3
Hooijisma, J.	msc	guest	0,00	0,00	0,00	1
Kaas, R.	prof. dr.	guest	-	-	0,00	1
Karim, R.	msc	phd	-	-	0,27	1
Khmaladze, E.	prof. dr.	guest	-	0,00	-	1
Kloek, T.G.	msc	guest	0,00	0,00	0,00	1
Kuné, J.B.	prof. dr.	guest	0,00	-	-	1
Laeven, R.	prof. dr.	hgl	-	0,10	0,10	3
Laeven, R.	prof. dr.	hgl	0,50	0,42	0,45	1
Li, Z.	msc	phd	0,80	0,53	-	1
Linders, D.	dr.	postdoc	-	-	0,10	3
Ronner, A.E.	prof. dr.	bijz. hgl	0,10	0,10	0,05	1
Roos, J.	mr.	guest	-	0,00	-	1
Schumacher, J.M.	prof. dr.	guest	0,00	0,00	0,00	1
Vellekoop, M.	prof. dr.	hgl	0,50	0,50	0,50	1
Verschuren, R.	msc	phd	-	0,13	0,80	3
Yang, L.	dr.	ud	0,17	0,80	0,60	1
Yue, Y.	msc	phd	0,80	0,53	-	3
Total 1st flow of funds			3,53	3,81	3,29	
Total 2nd flow of funds			0,00	0,00	0,00	
Total 3rd flow of funds			1,45	1,33	1,61	
Total 1st f.o.f. excl. Ph.D.'s			2,73	3,28	3,02	
Total 1st-3rd flow of funds			4,98	5,14	4,90	
Ph.D. students			1,87	1,19	1,07	

7.2 Programme design

The programme concerns both fundamental and applied research in the field of financial institutions. It mainly concerns insurance companies (for life, non-life, pension and social insurance) and pension funds, but also 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 with some form of guarantee 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. Remaining life expectancies continue to rise worldwide, 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 financial crisis. Proposals to modify the European regulatory framework Solvency II for insurers and the Dutch 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 research questions concern 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 under research are the homogeneity and heterogeneity of insurance portfolios, optimal risk allocation problems and fair valuation and risk sharing mechanisms in pension systems.

7.3 Programme Evaluation

Several new colleagues joined our group in 2019. PhD student Raviar Karim works on dynamic feedback mechanisms in macro-financial data and multivariate Hawkes processes and Evgenii Vladimirov (a joint PhD student with the Econometrics group) investigates the contagion of jumps in equity markets. Daniël Linders joined us from his previous position at the University of Illinois Urbana-Champaign and will continue his research on mathematical finance and valuation problems for insurance liabilities. Merrick Zhen Li finished his PhD thesis on high-frequency estimation problems for financial data and subsequently started as a postdoctoral research fellow in the Faculty of Economics of the University of Cambridge. His thesis won the Joop Hartog Dissertation Award for the best UvA economics thesis of 2020. In the fall, Rob Sperna Weiland defended his thesis on the link between credit risk and liquidity risk in the bond markets and the relationship between labor income risk and stock returns.

Many publications by our group which appeared this year are in the top journals for actuarial science and statistics. In *Insurance: Mathematics and Economics*, for example, Tim Boonen published a paper on risk allocation and the structure of insurance markets and a paper by Servaas van Bilsen and Daniël Linders on optimized structures for annuities also appeared there this year. Lu Yang published on improved premium calculations using longitudinal data in the *Journal of the Royal Statistical Society. Series A: Statistics in Society* and managed to get her paper on discrete copula models published in the *Journal of the American Statistical*

Association. Our research is appreciated by journals in other research fields as well. Katrien Antonio's article on statistical models with observation delay appeared in the *European Journal of Operational Research* and work on volatility estimation in high-frequency data by Merrick Zhen Li, Roger Laeven and Michel Vellekoop found its way to the *Journal of Econometrics*.

Our excellent reputation was further enhanced by numerous presentations at seminars and conferences, including the IME conference in München, in which many group members participated, and at a seminar at the Institute of Advanced Studies that we helped to organize, to explore new research collaboration opportunities with other groups at the UvA. Our international visibility was stimulated by our Actuarial Science and Mathematical Finance Seminar Series and the yearly international Winterschool on Mathematical Finance that we organize in cooperation with the science faculty of the UvA. Roger Laeven continued his work as editor for *Insurance: Mathematics and Economics*, the most important journal on actuarial science, and the very prestigious NWO VICI grant that has been awarded to him in 2019 will stimulate his research agenda on the most important risks for the 21st century: financial risk, climate risk and cyber risk.

We continue to strengthen our ties with the Dutch financial industry during many projects in which we cooperate with professionals in pension funds, insurance companies and banks. The research of Robert Verschuren applies new approaches from the field of data science to risk management problems at VIVAT and Frank van Berkum used similar techniques to improve mortality projections in a huge pension fund portfolio. Roger Laeven is the Selected Academic Member of the Insurance and Reinsurance Stakeholder Group (IRSG) of the European Insurance and Occupational Pensions Authority (EIOPA), and Frank van Berkum and Michel Vellekoop are members of the official body of the Dutch Actuarial Society (KAG) which publishes the official KAG mortality prognosis for Dutch pension funds and insurance companies. Servaas van Bilsen coordinates the research seminars of Netspar, the Network for Studies on Pensions, Ageing and Retirement. In this network, Dutch policymakers and representatives from financial institutions and universities cooperate in research programmes which work on the reform of the Dutch Pension system. Our group also provided the keynote presentation about the Dutch approach to risk sharing in pension systems during the OECD pensions conference in Paris this summer. While our main scientific interests are often theoretical, all these and many other initiatives help us to ensure that the problems that we study are also relevant for society as a whole.

Strengths: The composition of our tenure tracks reflects the broad 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 consists of many junior researchers and only a few senior researchers.

Opportunities: Our statistical expertise makes us a natural partner for other academics and professionals in insurance companies and pension funds who are intensifying their use of data science.

Threats: The number of Bachelor and Master theses that need to be supervised will continue to grow in the coming years, which will put extra strain on all staff members in the group.

7.4 Resources and Funding

- 2017-2021: Sponsoring of research project "Risk and Regulation" (in the chair of Risk and Insurance), Verbond van Verzekeraars.
- 2017- : VIVAT PhD Research Grant, jointly with Econometrics Group.
- 2020- : NWO VICI (Laeven)

7.5 Output

Key publications

Ait-Sahalia, Y., J. Fan, R. J. A. Laeven, C. Dan Wang & X. Yang (2017). Estimation of the continuous and discontinuous leverage effects. *Journal of the American Statistical Association* 112 (520), 1744-1758.

Yang, L & Shi, P. (2019), Multiperil rate making for property insurance using longitudinal data, *Journal of the Royal Statistical Society. Series A: Statistics in Society* 82(2), 647-668.

Boonen, TJ & Ghossoub, M. (2019). On the existence of a representative reinsurer under heterogeneous beliefs, *Insurance: Mathematics & Economics* 88, pp. 209-225.

Can, S. U., Einmahl, J. H. J., Khmaladze, E. V., & Laeven, R. J. A. (2015). Asymptotically distribution-free goodness-of-fit testing for tail copulas. *The Annals of Statistics* 43(2), 878-902.

Z. Merrick Li, Laeven R.J.A & Vellekoop, M.H. (2020). Dependent microstructure noise and integrated volatility estimation from high-frequency data, *Journal of Econometrics* 215(2), 536-558

Forthcoming

Dhaene, J, Kukush, A & Linders, D 2020, 'Comonotonic asset prices in arbitrage-free markets', *Journal of Computational and Applied Mathematics*, vol. 364, 112310. <https://doi.org/10.1016/j.cam.2019.06.026>

Eeckhoudt, LR, Laeven, RJA & Schlesinger, H 2020, 'Risk apportionment: The dual story', *Journal of Economic Theory*, vol. 185, 104971. <https://doi.org/10.1016/j.jet.2019.104971>

van Bilsen, S, Bovenberg, AL & Laeven, RJA 2019, 'Consumption and Portfolio Choice under Internal Multiplicative Habit Formation', *Journal of Financial and Quantitative Analysis*.
<https://doi.org/10.1017/S0022109019000772>

Yang, L, Frees, EW & Zhang, Z 2019, 'Nonparametric Estimation of Copula Regression Models with Discrete Outcomes', *Journal of the American Statistical Association*.
<https://doi.org/10.1080/01621459.2018.1546586>

Li, Z. Merrick, Laeven R.J.A & Vellekoop, M.H. (2020). Dependent microstructure noise and integrated volatility estimation from high-frequency data, *Journal of Econometrics* 215(2), 536-558.
<https://doi.org/10.1016/j.jeconom.2019.10.004>

Publications in numbers

Output type	Classification	#
Articles in journals	Refereed	8
	Non-refereed	0
	Professional	0
	Popular	0
Books or book chapters	Refereed	0
	Non-refereed	0
	Professional	0
	Popular	0
Report	Professional	0
Conference proceedings		0
PhD theses		2
Total		10

Article in journal – refereed

Boonen, TJ, Guillen, M & Santolino, M 2019, 'Forecasting compositional risk allocations', *Insurance: Mathematics & Economics*, vol. 84, pp. 79-86. <https://doi.org/10.1016/j.insmatheco.2018.10.002>

Boonen, TJ 2019, 'Static and dynamic risk capital allocations with the Euler rule', *Journal of Risk*, vol. 22, no. 1, pp. 1-15. <https://doi.org/10.21314/JOR.2019.420>

Boonen, TJ & Ghossoub, M. 2019, 'On the existence of a representative reinsurer under heterogeneous beliefs', *Insurance: Mathematics & Economics*, vol. 88, pp. 209-225.

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Dissertation – internally prepared

Li, Z. Merrick (2019). *Econometric Analysis of High-frequency Market Microstructure*.

Sperna Weiland, R. (2019). *Essays on Macro-Financial Risks*.

8. MInt - MACRO AND INTERNATIONAL ECONOMICS

Programme title	MInt – Macro and International Economics
Name programme director	Prof. dr. F.J.G.M. Klaassen
Department	Economics & Econometrics
JEL-Classification	E, F, H
Website	http://ase.uva.nl/mint

8.1 Members of the research group and research in FTEs

<i>Name</i>	<i>Title</i>	<i>Function</i>	<i>Total 2017</i>	<i>Total 2018</i>	<i>Total 2019</i>	<i>Funding</i>
Bats, J.	msc	guest	-	-	0,00	1
Beetsma, R.	prof. dr.	hgl	0,25	0,25	0,25	1
Beetsma, R.	prof. dr.	hgl	0,25	0,25	0,25	3
Chen, D.	msc	phd	-	-	-	3
Chen, D.	msc	guest	-	-	-	1
Chen, D.	dr.	postdoc	0,16	0,16	0,03	3
Ciminelli, G.	msc	guest	0,00	0,00	-	1
Ciurila, N.	msc	phd	0,60	-	-	1
Clymo, A.	dr.	postdoc	0,47	-	-	1
Dimitrov, D.	msc	phd	-	0,60	0,80	3
Ewijk, C. van	prof. dr.	hgl	0,08	0,08	0,08	1
Ewijk, C. van	prof. dr.	hgl	0,05	-	-	2
Ewijk, C. van	prof. dr.	hgl	0,30	0,34	0,22	3
Furtuna, O.	msc	phd	0,27	-	-	1
Furtuna, O.	msc	guest	0,00	-	-	1
Giuliodori, M.	prof. dr.	hgl	0,50	0,50	0,50	1
Hanson, J.	msc	guest	0,00	0,00	0,00	1
Houben, A.	prof. dr.	hgl	0,00	0,00	0,00	1
Hummel, A.	dr.	ud	-	-	0,20	1
Jakucyonite, E.	msc	phd	0,47	-	-	1
Jager, H.	prof. dr.	guest	0,00	0,00	0,00	1
Kastelein, P.	msc	phd	0,20	0,80	0,80	2
Kehoe, P.J.	msc	guest	-	-	0,00	1
Klaassen, F.J.G.M.	prof. dr.	hgl	0,50	0,50	0,50	1
Knot, K.	prof. dr.	hgl	0,00	0,00	0,00	1
Leefmans, N.	drs.	docent	0,00	0,00	0,00	1
Lekniute, Z.	msc	guest	0,00	0,00	0,00	1
Lengyel, A.	msc	phd	-	-	0,27	1
Lorié, J.A.	dr.	guest	0,00	0,00	0,00	1
Maurik, R. van	msc	phd	0,54	-	-	3
Maurik, R. van	msc	guest	0,00	0,00	-	1
Mavromatis, K.	dr.	ud	0,13	-	-	1
Mavus Kutuk, M.	msc	phd	-	-	0,27	1
Mokas, D.	msc	guest	-	-	0,00	1
Neamtu, I.	msc	phd	0,27	0,80	0,80	1
Olijslagers, S.	msc	phd	-	0,63	0,80	3
Olsson, J.	dr.	ud	-	-	0,20	1
Parlevliet, J.	msc	guest	0,00	0,00	0,00	1
Proehl, E.	dr.	ud	-	0,17	0,60	1
Romp, W.E.	dr.	ud	0,42	0,25	0,33	1
Spronsen, J. van	msc	phd	-	0,27	0,80	1

Stoltenberg, C.A.	dr.	ud	0,50	-	-	1
Stoltenberg, C.A.	dr.	uhd	-	0,50	0,50	1
Teulings, C.N.	prof dr	hgl	0,10	-	-	1
Teulings, R.	msc	guest	0,00	-	-	1
Veestraeten, D.	dr.	ud	0,00	0,07	0,20	1
Vijlbrief, J.A.	prof. dr.	hgl	-	-	0,00	1
Vos, S.J.	drs.	guest	0,00	0,00	0,00	1
Wijnbergen, S.J.G.	prof. dr.	hgl	0,50	0,50	0,50	1
Wohrmuller, S.	msc	phd	-	-	0,27	1
Zhuo, R.	msc	guest	-	-	0,00	1
Zhuo, R.	msc	phd	0,80	0,60	-	1
Zouain Pedroni, M.	dr.	ud	0,50	0,50	0,60	1
Total 1st flow of funds			6,36	4,99	6,67	
Total 2nd flow of funds			0,25	0,80	0,80	
Total 3rd flow of funds			1,25	1,98	2,10	
Total 1st f.o.f. excl. Ph.D.'s			3,95	3,32	4,46	
Total 1st-3rd flow of funds			7,86	7,77	9,57	
Ph.D. students			3,15	3,70	4,81	

8.2 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, Massimo Giuliodori, and Jesper Hanson analyse the effects of auctions on sovereign bond yields at secondary markets. They document that auctions result in a temporary increase in yields at markets of other euro area countries. So it may be optimal for debt management offices to coordinate debt issuance, in order to avoid concurrent auctions. Gabriele Ciminelli and Massimo Giuliodori analyse the effects of tax-based consolidations on income inequality, output and labour market conditions. They find that such policy reduces income inequality, but at the cost of weaker economic activity.

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. Ioana Neamtu and Sweder van Wijnbergen study contingent convertible capital (CoCos), which are bonds issued by banks that can be written off or converted to equity in times of distress. CoCos have played a major role in meeting the new higher capital requirements banks are confronted with since the global financial crisis. The authors study the Swiss CoCo regulation for large banks and show that the current CoCo structure harms the bank in case of crisis, instead of helping it. 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. Aerdts 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 response to the Great Financial Crisis, central banks around the world have adopted a series of non-standard policy measures. One is forward guidance, where the central bank informs the public about its intended future monetary policies. In one project Gabriele Ciminelli empirically investigates whether forward guidance helps to explain government bond yields, inflation expectations and exchange rates. Kostas Mavromatis studies the macroeconomic effects of 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, Damiaan Chen, Nicoleta Ciurila, Casper van Ewijk, Pim Kastelein, Ron van Maurik, Ward Romp, Siert Vos, and Sweder van Wijnbergen 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 many pension reforms are 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 investments.

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. One question is how business cycles influence inequality. A key methodological problem is that the wealth distribution moves stochastically over time in the presence of aggregate risk. Elisabeth Proehl proposes a discretization technique to approximate the wealth distribution, using results from the applied mathematics literature. 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.

Climate change

Climate change is one of the main risks the economy will face in the upcoming decades. How to value far out in the future but possibly catastrophic risks? Several models have been developed to quantify the impact of climate change on the economy, for example the DICE model of the 2018 Nobel Laureate William Nordhaus. Stan Olijslagers and Sweder van Wijnbergen develop a model with more realistic preferences and show that the effect on quantifying the impact of climate change on the economy is large.

8.3 Programme evaluation

In 2019 MInt published 8 articles in international refereed journals, and there are 6 of such publications forthcoming. The latter include the accepted articles in the *American Economic Review* by Marcelo Pedroni (joint work with Zhen Huo from Yale), and in *Quantitative Economics* by Christian Stoltenberg and former PhD student Swapnil Singh. Roel Beetsma and the other members of the European Fiscal Board finished their Annual Report, which was presented to the College of EU Commissioners and the Ecofin. Klaas Knot, president of the Dutch Central Bank and member of MInt, gave his guest lecture to our students. Marcelo Pedroni won the third prize in the Faculty best teacher award. MInt was again successful at the international job market, where we recruited Thomas Douenne from the Paris School of Economics for a tenure track position in Environmental Economics starting next year. Pim Kastelein continued his PhD project financed by an NWO Research Talent grant. The same holds for Eva Janssens. PhD student Ioana Neamtu accepted a job offer from the Bank of England.

The year 2019 experienced some changes in the composition of the group. Albert Jan Hummel and Jonna Olsson started on their tenure-track positions. Neeltje van Horen from the Bank of England accepted an offer for a part-time professorship starting next year. Andras Lengyel, Merve Mavuş Kütük, and Stefan Wöhrmüller joined from the Tinbergen Institute MPhil program. Joost Bats and Dimitris Mokas, both from DNB, started as external PhD students. More new PhD students will start next year. 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, Stanford University, University College London, University of Oxford, and Yale University), and participation in networks such as Netspar, where Casper van Ewijk is the director. 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 non-academic exposure.

There are intensive contacts with policy institutions via visitorships and joint research papers (Bank of Canada, Bank of England, CPB, Deutsche Bundesbank, ECB, European Commission, European Fiscal Board, Federal Reserve Bank of Minneapolis, ILO, IMF, OECD, World Bank, WTO, among others), via Preadviezen for the Koninklijke Vereniging voor de Staathuishoudkunde, via joint positions, consultancy work (ECB), advisory positions (DNB), seminars, teaching (by employees of DNB), and memberships of several advisory committees for the EU, ECB, World Economic Forum, BIS, IMF, and 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, a.s.r. Vermogensbeheer, Bedrijfstakpensioenfonds Detailhandel, BNG Vermogensbeheer, MN, and SEO Economisch Onderzoek.

And MIInt 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, 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. Another sign of the societal relevance is that many BSc and MSc students take our courses and write their theses at MIInt. 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 program. Solid funding base, not only because we serve many BSc and MSc students, but also because of our connections to the non-academic world. Coherent group. Good seminar series, joint 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

It is hard to attract top tenure trackers. The large number of students, which by itself is good, makes it difficult for the existing staff to have enough time for research. Another threat comes from the decreasing funding for research, partly because of the UvA allocation model. The COVID-19 pandemic can lead to a substantial drop in student inflow, particularly given the typically high inflow of international students.

8.4 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's research time is also to a large extent sponsored by Netspar. Henk Jager uses an NWO doctoral grant for teachers. Paul van den Noord obtained funds from Nomura Foundation, Tokyo. Pim Kastelein's research, supervised by Roel Beetsma and Ward Romp, is financed by a four-year NWO Research Talent grant, as is Eva Janssens' research, partly supervised by Christian Stoltenberg. Damiaan Chen's postdoc position is partly financed by a Netspar grant, obtained by Roel Beetsma and Sweder van Wijnbergen. Half of Aerdt Houben's position is financed by De Nederlandsche Bank.

8.5 Research output

Key publications

- Beetsma, R.M.W.J., Cimadomo, J., Furtuna, O. & Giuliodori, M. (2015). The confidence effects of fiscal consolidations. *Economic Policy*, 30 (83), 439-489.
- Beetsma, R.M.W.J., Cukierman, A., & Giuliodori, M. (2016). The Political Economy of Redistribution in the U.S. in the Aftermath of World War II - Evidence and Theory. *American Economic Journal. Economic Policy*, 8(4), 1-40. DOI: 10.1257/pol.20140193
- Kirchner, M., & van Wijnbergen, S. (2016). Fiscal deficits, financial fragility, and the effectiveness of government policies. *Journal of Monetary Economics*, 80, 51-68.
- Kriwoluzky, A. & Stoltenberg, C.A. (2015). Monetary Policy and the Transaction Role of Money in the United States. *Economic Journal*, 125, 1452-1473.
- Van Wijnbergen, S. J. G., & Homar, T. (2016). Bank recovery and economic recovery after Financial Crises. *Journal of Financial Intermediation*.

Forthcoming

- Cimadomo, J, Ciminelli, G, Furtuna, O & Giuliodori, M 2020, 'Private and public risk sharing in the euro area', *European Economic Review*, vol. 121, 103347. <https://doi.org/10.1016/j.euroecorev.2019.103347>
- Cizel, J, Frost, J, Houben, A & Wierst, P 2019, 'Effective Macroprudential Policy: Cross-Sector Substitution from Price and Quantity Measures', *Journal of Money, Credit and Banking*, vol. 51, no. 5, pp. 1209-1235. <https://doi.org/10.1111/jmcb.12630>
- Denderski, P & Stoltenberg, CA 2020, 'Risk sharing with private and public information', *Journal of Economic Theory*, vol. 186, 104988. <https://doi.org/10.1016/j.jet.2019.104988>
- Kastelein, PB & Romp, WE 2019, 'Pension Fund Restoration Policy in General Equilibrium', *Macroeconomic Dynamics*. <https://doi.org/10.1017/S1365100518001049>

Publications in numbers

Output type	Classification	#
Articles in journals	Refereed	7
	Non-refereed	1
	Professional	20
	Popular	3
Books or book chapters	Refereed	0
	Non-refereed	0
	Professional	0
	Popular	0
Reports	Professional	0
Conference proceedings		0
PhD theses		0
Total		31

Article in journal – refereed

- Beetsma, RMWJ, Debrun, X, Fang, X, Kim, Y, Lledo, V, MBaye, S & Zhang, X 2019, 'Independent Fiscal Councils: Recent Trends and Performance', *European Journal of Political Economy*, vol. 57, no. 1. <https://doi.org/10.1016/j.ejpoleco.2018.07.004>

- Beetsma, RMWJ, Lekniute, Z & Ponds, E 2019, 'US municipal yields and unfunded state pension liabilities', *Journal of Empirical Finance*, vol. 53, no. 1. <https://doi.org/10.1016/j.jempfin.2019.05.003>
- Ciminelli, G, Ernst, E, Giuliodori, M & Merola, R 2019, 'The Composition Effects of Tax-based Consolidations on Income Inequality', *European Journal of Political Economy*.
<https://doi.org/10.1016/j.ejpoleco.2018.08.009>
- Cizel, J, Frost, J, Houben, A & Wierds, P 2019, 'Effective Macroprudential Policy: Cross-Sector Substitution from Price and Quantity Measures', *Journal of Money, Credit and Banking*, vol. 51, no. 5, pp. 1209-1235. <https://doi.org/10.1111/jmcb.12630>
- Hijzen, A, Martins, PS & Parlevliet, J 2019, 'Frontal assault versus incremental change: A comparison of collective bargaining in Portugal and the Netherlands', *IZA Journal of Labor Policy*, vol. 9, no. 1, 8.
<https://doi.org/10.2478/izajolp-2019-0008>
- Westerhout, E & Beetsma, R 2019, 'A comparison of nominal and indexed debt under fiscal constraints', *Journal of International Money and Finance*, vol. 91, pp. 177-194.
<https://doi.org/10.1016/j.jimonfin.2018.12.006>
- Yang, L, van Wijnbergen, S, Qi, X & Yi, Y 2019, 'Chinese shadow banking, financial regulation and effectiveness of monetary policy', *Pacific-Basin Finance Journal*, vol. 57, 101169.
<https://doi.org/10.1016/j.pacfin.2019.06.016>

Article in journal – professional

- Beetsma, RMWJ, Vos, SJ & Wannings, C 2019, 'Column: Kapitaaldekking in pensioenstelsel moet behouden blijven', *Economisch-Statistische Berichten*, vol. 104, no. 4777.
- Chen, DHJ, Beetsma, RMWJ & van Wijnbergen, SJG 2019, 'Hogere welvaart als inflatierisico van pensioen beter kan worden afgedekt', *Economisch-Statistische Berichten*.
- Chen, DHJ & Doll, M 2019, 'Pensioendeelnemers profiteren van maatwerk in risicotoedeling', *Economisch-Statistische Berichten*.
- Houben, ACFJ & Reijnders, D 2019, 'De lat voor digital centrale bank geld ligt hoog', *Economisch-Statistische Berichten*.
- Houben, A, Cizel, J, Frost, J & Wierds, P, Waterbed effects of macroprudential policies: Evidence on cross-sector substitution, 2019, Web publication/site, VOX.
- Lorié, JA 2019, 'Public credit insurance benefits international trade. But how much?', *Journal of Risk Management in Financial Institutions*, vol. 12, no. 3, pp. 232-240.
- Lorié, J 2019, 'Public Credit Insurance benefits international trade. But how much?', *Berne Union Yearbook*, no. 2019, pp. 144-148.
- Lorié, JA 2019, 'Risk outlook 2020: A bleak picture with abundant risks', *Berne Union Yearbook*, vol. 2019, pp. 54-58.
- Lorié, J 2019, 'Noodzakelijke energietransitie biedt kansen', *PM. Pensioen Magazine*, vol. 24, no. 6/7, pp. 11-16.
- Lorié, J & Smid, T 2019, 'Zuid Europa: herstel na de crisis', *Creditnotes*, vol. 2019, no. 3, 8.
- Lorié, J, Exportkredietverzekering bevordert internationale handel, 2019, Web publication/site, MeJudice.
- Schinkel, MP & van Wijnbergen, SJG 2019, 'Staatssecretaris bijt Waakhond', *Economisch Statistische Berichten*.
- Thygesen, N, Beetsma, R, Bordignon, M, Duchêne, S & Szczurek, M 2019, Assessment of EU fiscal rules with a focus on the six and two-pack legislation. European Fiscal Board, Brussels.
- Thygesen, N, Beetsma, R, Bordignon, M, Duchêne, S & Szczurek, M 2019, Assessment of the fiscal stance appropriate for the euro area in 2020. European Fiscal Board, Brussels.

Thygesen, N, Beetsma, R, Bordignon, M, Duchêne, S & Szczurek, M 2019, Annual Report 2019. European Fiscal Board, Brussels.

van den Noord, PJ 2019, Are the current "automatic stabilisers" in the Euro Area Member States sufficient to smooth economic cycles? European Parliament, Brussels. <https://doi.org/10.2861/115187>, <https://doi.org/10.2861/047198>

van Ewijk, C & Nijman, T 2019, 'Het pensioenakkoord verzekert welvaartswinst, maar is niet af', Economisch-Statistische Berichten, vol. 104, no. 4777, pp. 390-393.

van Ewijk, C & Lejour, A 2019, De lage rente biedt kans om de behandeling van de eigen woning te hervormen. in B Jacobs (ed.), Ontwerp voor een beter belastingstelsel: Reform of tax system. ESB, pp. 46.

Vos, SJ & Arts, J 2019, 'Collectief beleggen voor het individu: een paradox?', VBA Journaal, vol. 35, no. 138.

Vos, SJ & Joseph, AS 2019, 'Meerwaarde van levenslang pensioen', Pensioen Bestuur & Management, vol. 1, no. 2019.

Article in journal – popular

Beetsma, RMWJ, Amman, HM, van Dissel, HG, Salomon, M & ter Weel, BJ 2019, 'Met hokjesdenken los je het tekort aan technici niet op', *Financieele Dagblad*.

Beetsma, RMWJ & Gradus, R 2019, 'Hervormingen vragen een langetermijnvisie, en niet enkel oog voor de waan van de dag', *Financieele Dagblad*.

Beetsma, RMWJ & Gradus, R 2019, 'Zalmenorm moet ankerpunt blijven van begrotingsbeleid van huidige kabinet', *Financieele Dagblad*.

Activities

Talk or presentation

Aerd Houben (Speaker), Safe Assets in Financial Markets and EMU, Jan 2019.

Elisabeth Proehl (Invited speaker), Existence and Uniqueness of Recursive Equilibria with Aggregate and Idiosyncratic Risk, 8 Feb 2019.

Ward Romp (Speaker), Seminar at the OECD, Paris, 14 Feb 2019.

Ward Romp (Speaker), Seminar at the CPB, The Hague, 19 Feb 2019.

Aerd Houben (Speaker), 19th OECD-ADBI Tokyo Roundtable on Capital Market and Financial Reform in Asia, 26 Feb 2019 → 27 Feb 2019.

Elisabeth Proehl (Speaker), Existence and Uniqueness of Recursive Equilibria with Aggregate and Idiosyncratic Risk, 6 Apr 2019.

Elisabeth Proehl (Invited speaker), Existence and Uniqueness of Recursive Equilibria with Aggregate and Idiosyncratic Risk, 9 Apr 2019.

Aerd Houben (Keynote speaker), The Impact of Financial Structure on Systemic Risk, 15 May 2019 → 17 May 2019.

Elisabeth Proehl (Speaker), Existence and Uniqueness of Recursive Equilibria with Aggregate and Idiosyncratic Risk, 22 May 2019.

Ward Romp (Speaker), Invited discussant PerCent Annual Conference, 22 May 2019.

Aerd Houben (Speaker), Financial markets and monetary policy changes in the wake of the Great Financial Crisis, Jun 2019.

Ward Romp (Speaker), Speaker at the workshop on Empirical Macroeconomics, 6 Jun 2019.

Pim Kastelein (Speaker), Pension Fund Restoration Policy in General Equilibrium, 13 Jun 2019.

Aerd Houben (Speaker), Central Bank Digital Currency, 26 Jun 2019.

Aerdts Houben (Speaker), Blockchain in Financial Services, 12 Sep 2019 → 13 Sep 2019.

Jonna Olsson (Participant), The Changing Economy and the Business Cycle, 16 Sep 2019 → 17 Sep 2019.

John Lorie (Speaker), Trade war weighs in, 23 Sep 2019.

Ward Romp (Speaker), Speaker at the Economic Policy Panel Meeting, 10 Oct 2019.

Marcelo Zouain Pedroni (Speaker), Presentation of "Dynamic Information Aggregation", 23 Oct 2019.

Jonna Olsson (Speaker), Structural transformation of the labor market and the aggregate economy, 23 Oct 2019.

Jonna Olsson (Participant), Norface: Trends in Inequality -- Sources and Policy, 19 Nov 2019 → 20 Nov 2019.

Aerdts Houben (Speaker), Interactions between monetary policy and macroprudential policies, 2 Dec 2019.

Elisabeth Proehl (Speaker), Existence and Uniqueness of Recursive Equilibria with Aggregate and Idiosyncratic Risk, 4 Dec 2019.

Marcelo Zouain Pedroni (Speaker), Presentation of "Dynamic Information Aggregation", 4 Dec 2019.

Jonna Olsson (Participant), Econometric Society Winter Meeting, 15 Dec 2019 → 17 Dec 2019.

Elisabeth Proehl (Speaker), Staying in Academia, 17 Dec 2019.

Publication peer-review and editorial work

Elisabeth Proehl (Reviewer), Decisions in Economics and Finance (Journal)

Elisabeth Proehl (Reviewer), Journal of Economic Dynamics and Control (Journal)

Memberships

Aerdts Houben (Member), BIS Committee on the Global Financial Systems (External organisation), 2019.

Aerdts Houben (Member), BIS Markets Committee (External organisation), 2019.

Casper van Ewijk (Member), Ministerie van Financiën (External organisation), 2019 → 2020.

Casper van Ewijk (Member), Ministerie van Sociale Zaken (External organisation), 2019 → 2020.

Aerdts Houben (Chair), OECD Parijs (External organisation), 2019.

Casper van Ewijk (Member), Ministerie van Economische Zaken en Klimaat (External organisation), Jan 2019 → Apr 2019.

Casper van Ewijk (Member), Min. van VWS (External organisation), Jan 2019 → Jun 2019.

Casper van Ewijk (Member), Ministerie SZW (External organisation), Dec 2019 → Jul 2020.

9. HUMAN CAPITAL

Programme director: Prof. dr. E. Plug
 Section: Microeconomics
 JEL-classification: I, J, L
 Starting date: 2001
 Website: www.ase.uva.nl/hum

9.1 Members of the research group and research in FTEs

<i>Name</i>	<i>Title</i>	<i>Function</i>	<i>Total 2017</i>	<i>Total 2018</i>	<i>Total 2019</i>	<i>Funding</i>
Albrecht, S.	msc	phd	0,63	-	-	1
Azevedo, L. de	msc	phd	-	0,13	0,80	1
Booij, A.S.	dr	ud	0,43	0,50	0,50	1
Geijtenbeek, L.	msc	phd	0,04	0,00	0,00	1
Hartog, J.	prof. dr.	guest	0,00	0,00	0,00	1
Meulen, S. ter	msc	phd	0,27	0,80	0,80	1
Oosterbeek, H.	prof. dr.	hgl	-	-	0,01	2
Oosterbeek, H.	prof. dr.	hgl	0,50	0,50	0,50	1
Plug, E.J.S.	dr.	hgl	0,50	0,50	0,50	1
Praag, B.M.S. van	prof. dr.	guest	0,00	0,00	0,00	1
Rossi, P.	dr.	ud	0,50	0,50	0,80	2
Ziegler, L.	msc	guest	0,00	-	-	1
<u>Subprogramme TIER</u>					-	
Groot, W.	prof. dr.	hgl	0,20	-	-	2
Hogendoorn, B.	dr.	oz	0,67	-	-	2
Maassen van den Brink, H.	prof. dr.	hgl	0,69	1,00	1,00	2
Nessler, C.	dr.	oz	1,00	0,75	-	2
Tomini, F.	dr.	oz	0,50	-	-	2
Vooren, M. van	dr.	oz	0,80	0,80	0,80	2
<u>Subprogramme AIID</u>					-	
Pradhan, M.P.	prof. dr.	hgl	0,15	0,15	0,15	1
Pradhan, M.P.	prof. dr.	hgl	0,20	0,20	0,20	3
Total 1st flow of funds			3,02	3,08	3,25	
Total 2nd flow of funds			3,86	2,55	2,61	
Total 3rd flow of funds			0,20	0,20	0,20	
Total 1st f.o.f. excl. Ph.D.'s			2,08	2,15	1,65	
Total all flows of funds			7,08	5,83	6,06	
Ph.D. students			0,94	0,93	1,60	

9.2 Programme Design

Objective

The program is an empirically driven research program which relies on micro-econometric techniques to study important microeconomic issues in the areas of labour economics, economics of education, family 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/behavioural 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 behaviour with careful empirical work, using the most rigorous methods in applied micro-econometrics.

Themes

The human capital group is originally a labour orientated economics program which investigates various aspects of labour economics. Over the years, however, the human capital group has extended its range of topics in applied microeconomics, covering the fields of labour economics, economics of education, family economics, and development economics.

Organization

The human capital group is part of the larger microeconomics section. Its members are further affiliated with three research groups: ACAM, TIER, and AIGHD.

ACAM (Amsterdam Center of Applied Microeconometrics) is a joint venture of the University of Amsterdam and the VU University Amsterdam. ACAM is founded in 2015 and hosts 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 the top economics journals (AER, JPE, QJE, REStud). The strong collaboration between UvA and VU members shows through a joint seminar series, joint PhD supervision, and work-in-progress meetings. ACAM researchers include Erik Plug, Hessel Oosterbeek, Adam Booij, Pauline Rossi, and Thomas Buser, Simon ter Meulen, and Luisa de Azevedo.

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 is funded externally. Henriette Maassen van den Brink is the director of TIER Amsterdam and largely responsible for attracting large external grants. Other TIER staff members include Wim Groot, Melvin van Vooren.

AIGHD (Amsterdam Institute for Global Health & Development) is also a joint initiative of the University of Amsterdam and the VU University Amsterdam. AIGHD is a multidisciplinary research network with a strong focus on generating evidence to improve the design of policies to reduce poverty. AIGHD members are Menno Pradhan and Emily Berkhout.

9.3 Programme Evaluation

The human capital group is a small-scale research programme. In 2019, the human capital group did not change in composition.

Despite its small size, the scientific output of the human capital group has been outstanding. Over the years, most of their research has been published in top field journals and frequently finds its way into the top 5 journal in economics (American Economic Review, Journal of Political Economy, Quarterly Journal of

Economics, Review of Economic Studies). In these terms, the year 2019 has been again an excellent year. Highlights include the top 5 publication of Pauline Rossi (with an article in the Review of Economic Studies) and top-field publications of Hessel Oosterbeek (with two articles -one published and another one accepted- in Journal of Health Economics and American Economic Journal: Applied Economics which are the leading journal in the fields of health economics and applied micro economics. We further congratulate Erik Plug for being awarded NWO's open competition grant, which is a four year research grant.

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, VU 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. 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 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 Maassen 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 Maassen 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 Association of Labour Economists, which is an association of about 800 scientists working in field of labour economics (or related to labour economics).

The human capital group attracts and delivers many good PhD students. This year, the HC group went to the economic job market (organized in Napels) for an assistant professor position. We have been able to attract is a highly talented economist Giuseppe Sorrenti, who will join us the academic year of 2019/2020.

In sum, the human capital group experienced an outstanding 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.

This evaluation is reflected in the following SWOT analysis. Here we list our main Strengths, and summarize how we have dealt with our (previous) Weaknesses and Threats:

Strengths: one of the strongest research groups of the department; high quality research addressing issues of societal relevance; stimulating research environment; good reputation; good placement record of former PhD students; internal coherent and visible research theme.

Weaknesses: we are a relatively small group, and therefore sensitive to compositional changes in the academic staff; we are working on this – we have been successful on the 2018/2019 jobmarket and were able to attract Guiseppa Sorrenti for 2019/2020.

Opportunities: we have successfully sought closer collaboration with labour economics group at Free University Amsterdam (ACAM).

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. The increasing empirical importance has not been reflected in our economics curriculum; we are working on this – in the current bachelor

curriculum we are now responsible for two new courses teaching elementary statistics, the key concepts of applied econometrics, using real-world examples.

9.4 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 (Elisabeth Artmann and Simon ter Meulen) are co-financed with Free University Amsterdam (VU). Pauline Rossi has received a NWO VENI grant. Several visiting researchers participate in the program, without financial compensation. Menno Pradhan is a principal investigator funded by AIGHD.

9.5 Output

Key publications

Booij, A, Leuven, E. & Oosterbeek, H. (2017). Ability peer effects in university: Evidence from a randomized experiment. *Review of Economic Studies*. 84, 547-587.

Bjorklund, A., Lindahl, M. & Plug, E. (2006). The origins of intergenerational associations: Lessons from Swedish adoption data. *Quarterly Journal of Economics*, 121, 999-1028.

Buser, T., Niederle, M. & Oosterbeek, H. (2014). Gender, competitiveness and career choices. *Quarterly Journal of Economics*, 129, 1409-1447.

Fredriksson, P., Ockert, B. & Oosterbeek, H. (2013). Long-term effects of class size. *Quarterly Journal of Economics* 128. 249-285.

Lundborg, P., Plug, E. & Wurz Rasmussen, A. (2017). Can women have children and a career? IV evidence from IVF treatments. *American Economic Review*, 107, 1611-1637.

Plug, E., & Vijverberg, W. (2003). Schooling, family background, and adoption: Is it nature or is it nurture. *Journal of Political Economy*, 111, 611-641.

Plug, E. (2004). Estimating the effect of mother's schooling on children's schooling using a sample of adoptees. *American Economic Review*, 94, 358-358.

Ree, J. de, Muralidharan, K., Pradhan, M., & Rogers, H. (2018). Double for nothing? Experimental evidence on an unconditional teacher salary increase in Indonesia. *Quarterly Journal of Economics*, 133(2), 993-1039.

Rossi, P. (2019). Strategic choices in polygamous household: Theory and evidence. *Review of Economic Studies*. 84, 547-587.

Forthcoming

Artmann, E., Oosterbeek, H., & van der Klaauw, B. Do doctors improve the health care of their parents? Evidence from admission lotteries. *American Economic Journal: Applied Economics* (forthcoming).

Nakajima, N, Jung, H, Pradhan, M, Hasan, A, Kinnell, A & Brinkman, S 2019, 'Gender gaps in cognitive and social-emotional skills in early primary grades: Evidence from rural Indonesia', *Developmental Science*. <https://doi.org/10.1111/desc.12931>

van Praag, BMS & Hop, JP 2020, 'Demography and Provisions for Retirement: The Pension Composition, a Behavioral Approach', *Journal of Demographic Economics*, pp. 1-34.

Publications in numbers

Output type	Classification	#
Articles in journals	Refereed	5

	Non-refereed	0
	Professional	0
	Popular	0
Books or book chapters	Refereed	0
	Non-refereed	0
	Professional	0
	Popular	0
Conference proceedings		0
PhD theses		0
Total		5

Article in journal – refereed

Amare, M, Mariara, J, Oostendorp, R & Pradhan, M 2019, 'The impact of smallholder farmers' participation in avocado export markets on the labor market, farm yields, sales prices, and incomes in Kenya', *Land Use Policy*, vol. 88, 104168. <https://doi.org/10.1016/j.landusepol.2019.104168>

Hogendoorn, B, Rud, I, Groot, W & Maassen van den Brink, H 2019, 'The effects of human capital interventions on entrepreneurial performance in industrialized countries', *Journal of Economic Surveys*, vol. 33, no. 3, pp. 798-826. <https://doi.org/10.1111/joes.12308>

Ketel, N, Leuven, E, Oosterbeek, H, & van der Klaauw, B 2019, 'Do Dutch dentists extract monopoly rents?' *Journal of Health Economics*, vol. 63, pp. 145-158. <https://doi.org/10.1016/j.jhealeco.2018.11.001>

Nakajima, N, Hasan, A, Jung, H, Brinkman, S, Pradhan, M & Kinnell, A 2019, 'Investing in school readiness: A comparison of different early childhood education pathways in rural Indonesia', *International Journal of Educational Development*, vol. 69, pp. 22-38. <https://doi.org/10.1016/j.ijedudev.2019.05.009>

Oosterbeek, H & Ruijs, N 2019, 'School choice in Amsterdam: Which schools are chosen when school choice is free?' *Education Finance and Policy*, vol. 14, pp. 1-30. https://doi.org/10.1162/edfp_a_00237

Rossi, P 2019, 'Strategic choices in polygamous households: Theory and evidence from Senegal', *The Review of Economic Studies*, vol. 86, no. 3, pp. 1332–1370. <https://doi.org/10.1093/restud/rdy052>

Vooren, M, Haelermans, C, Groot, W & Maassen van den Brink, H 2019, 'Employers' preferences for IT-retrainees: evidence from a discrete choice experiment', *International Journal of Manpower*, vol. 40, no. 7, pp. 1273-1287. <https://doi.org/10.1108/IJM-01-2019-0001>

Talk or presentation

Pauline Rossi (Speaker), Bristol economics seminar, 2019.

Pauline Rossi (Speaker), Columbia nanodev workshop, 2019.

Pauline Rossi (Speaker), CREST economics seminar, 2019.

Pauline Rossi (Speaker), ILO BBL seminar, 2019.

Pauline Rossi (Speaker), Rotterdam health seminar, 2019.

Pauline Rossi (Speaker), UPF labor/public/development seminar, 2019.

Pauline Rossi (Speaker), Warwick Applied Workshop, 2019

Pauline Rossi (Speaker), World Bank Pension Workshop, 2019.

Pauline Rossi (Speaker), Yale development lunch, 2019.

10. EXPERIMENTAL & POLITICAL ECONOMICS (CREED)

Programme director: Prof. dr. J.H. Sonnemans
 Section: Microeconomics
 JEL-classification: I, J, L
 Starting date: 1991
 Website: <https://www.creedexperiment.nl/creed/>

10.1 Members of the research group and research in FTEs

<i>Name</i>	<i>Title</i>	<i>Function</i>	<i>Total 2017</i>	<i>Total 2018</i>	<i>Total 2019</i>	<i>Funding</i>
Akdeniz, A.	msc	phd	0,27	0,80	0,80	1
Amasino, D.	dr.	postdoc	-	-	0,27	2
Brütt, K.	msc	phd	-	0,27	0,80	2
Dreu, C. de	prof. dr.	hgl	0,20	0,20	0,20	1
Engelmann, J.	dr.	uhd	0,80	0,80	0,50	1
Gneezy, U.	prof. dr.	hgl	0,19	0,20	0,20	1
Graser, C.	msc	phd	-	-	0,27	1
Hirmas Frisius, A.	msc	phd	-	-	0,27	1
Hu, A.	dr.	oz	0,19	-	-	2
Ioannidis, K	msc	phd	0,13	0,80	0,80	1
Jagau, S.	msc	phd	0,80	0,53	-	1
Kobis, N.	dr.	postdoc	0,80	0,80	0,80	2
Lebreton, M.	dr.	oz	1,00	0,58	-	2
Lebreton, M.	guest	oz	-	0,00	-	1
Lee, N.	dr.	ud	-	-	0,00	1
Leib, M.	msc	phd	0,80	0,80	0,80	2
Mermer, G.	dr.	postdoc	-	0,40	0,80	2
Nelidov, V.	msc	phd	0,80	0,80	0,70	1
Offerman, T.J.S.	prof. dr.	hgl	0,50	0,50	0,50	1
Onderstal, A.M.	dr.	ud	0,20	0,13	-	1
Pace, D.	msc	phd	-	0,27	0,60	2
Rilovic, A.	msc	phd	0,53	0,07	-	1
Rilovic, A.	msc	guest	-	0,00	-	1
Ringdal, C.	dr.	postdoc	-	0,27	0,80	2
Romagnoli, G.	dr.	ud	0,50	0,50	0,60	1
Schram, A.J.H.C.	prof. dr.	hgl	0,20	0,20	0,20	1
Shalvi, S.	dr.	uhd	0,80	0,80	0,66	2
Sonnemans, J.	prof. dr.	hgl	0,50	0,50	0,50	1
Sorraperra, I.	dr.	postdoc	0,80	0,80	0,80	2
Ting, C.	msc	phd	0,80	0,80	0,53	1
Ule, A.	dr.	ud	0,03	0,11	0,20	1
Veelen, C.M. van	prof. dr.	hgl	0,50	0,50	0,50	1
Weele, J. van der	dr.	ud	0,50	0,80	0,80	2
Winden, F.A.A.M. van	prof. dr.	guest	0,00	0,00	0,00	1
Woerner, A.	msc	phd	0,80	0,53	-	1
Ziegler, A.	msc	phd	-	0,27	0,80	1
Total 1st flow of funds			8,25	7,97	7,57	
Total 2nd flow of funds			4,39	5,79	7,13	
Total 3rd flow of funds			0,00	0,00	0,00	
Total 1st f.o.f. excl. Ph.D.'s			4,12	3,64	3,40	
Total 1st-3rd flow of funds			12,64	13,76	14,70	
Ph.D. students			4,93	5,67	6,37	

10.2 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.

10.3 Programme evaluation

In 2019 we welcomed 2 new PhD students, one post-doc and one tenure tracker. PhD students Chris Graser and Alejandro Hirmas will be supervised by respectively Matthijs van Veelen and Jan Engelmann. Dianna Amasino started with a three-year postdoc on the VIDI project of Joël van der Weele. Natalie Lee started with her tenure track.

Three PhD-students left CREED in 2019. Junze Sun defended his thesis in December 2019 and started a two-year Max Weber postdoctoral fellowship at the European University Institute in Florence, Italy. Andrej Woerner started as an assistant professor at the University of Munchen and will defend his thesis in 2020. Vadim Nelidov has started a job in the field of data science and machine learning and will also defend his thesis in 2020.

External recognition of the research undertaken at CREED was received in the form of some important grants, awards and prizes. Shaul Salvi received a VIDI grant in March, and an ERC Consolidator Grant in November 2019.

A series of top-level publications (21 published plus 4 accepted for publication) include articles in the Journal of Economic Theory, European Economic Review, Games and Economic Behavior, Science Advances, PNAS, Journal of Experimental Social Psychology. In addition, Arthur Schram and Aljaz Ule edited a book "Handbook of Research Methods and Applications in Experimental Economics". The 21 chapters are written by leading experts in their field, and three chapters are written by CREED members and three others by recent ex-members.

External recognition of the research undertaken at CREED was received in various other ways as well. These include numerous invitations to present seminars or keynote lectures and various associate editorships. Research contacts were continued, i.a., by a successful Tinbergen seminar series that included presentations by renowned scholars such as Stephanie Heger, Lionel Page, Willemien Kets, Malia Mason, Tanya Rosenblat, Leeat Yariv, Emanuel Vespa, Jacopo Perego, Tim Cason, Ingo Zettler, David Schindler, David Yang and Sourav Bhattacharya. In September 2019 we met with the behavioral economists of the Erasmus University with four presentations of each group. 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. In June 2019 we held a 2-day meeting in Zutphen with all CREEDers to discuss long-term visions of our fields and discuss possible developments for the next 10-20 years. Finally, Jeroen van de Ven and Arthur Schram organized a summer school on Experimental Economics.

10.4 Resources and Funding

The program 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.

- 21 Mar 2019: NWO VIDI (Shalvi)
- 15 Nov 2019: ERC Consolidator Grant (Shalvi)

10.5 Research output

Key publications

De Dreu, Carsten K.W. , H. Steven Scholte, Frans A.A.M. van Winden, and K. Richard Ridderinkhof (2015) Oxytocin Tempers Calculated Greed but not Impulsive Defense in Predator-Prey Contests Social Cognitive and Affective Neuroscience 10, 721-728

Engelmann, JB, Meyer, F, Ruff, C & Fehr, E 2019, 'The neural circuitry of affect-induced distortions of trust', Science Advances, vol. 5, no. 3, aau3413.

Grossman, Zachary and Joël J. van der Weele (2017) Self-image and willful ignorance in social decisions. Journal of the European Economic Association 15,173-217

van Leeuwen, Boris, Charles Noussair, Theo Offerman, Sigrid Suetens, Matthijs van Veelen and Jeroen van de Ven (2018) Predictably Angry: Facial cues provide a credible signal of destructive behavior. *Management Science* 64, 2973-3468

van Veelen, Matthijs (2018) Can Hamilton's rule be violated? *eLife* 7, e41901

Weber, Matthias, John Duffy, and Arthur Schram (2018) An Experimental Study of Bond Market Pricing. *Journal of Finance* 73, 1857-1892

Gross, Jorg, Margarita Leib, Theo Offerman and Shaul Shalvi (2018) Ethical Free Riding: When Honest People Find Dishonest Partners. *Psychological Science* 29: 1956-1968

Forthcoming

Gordon-Hecker, T, Pittarello, A, Shalvi, S & Roskes, M 2020, 'Buy-one-get-one-free deals attract more attention than percentage deals', *Journal of Business Research*, vol. 111, pp. 128-134.
<https://doi.org/10.1016/j.jbusres.2019.02.070>

Gortner, PJ & van der Weele, JJ 2019, 'Peer effects and risk sharing in experimental asset markets', *European Economic Review*, vol. 116, pp. 129-147. <https://doi.org/10.1016/j.euroecorev.2019.04.001>

He, S, Offerman, T & van de Ven, J 2019, 'The power and limits of sequential communication in coordination games', *Journal of Economic Theory*, vol. 181, pp. 238-273.
<https://doi.org/10.1016/j.jet.2019.02.00>

Leib, M, Pittarello, A, Gordon-Hecker, T, Shalvi, S & Roskes, M 2019, 'Loss framing increases self-serving mistakes (but does not alter attention)', *Journal of Experimental Social Psychology*, vol. 85, 103880. <https://doi.org/10.1016/j.jesp.2019.103880>

Mazyaki, A & van der Weele, J 2019, 'On esteem-based incentives', *International Review of Law and Economics*, vol. 60, 105848. <https://doi.org/10.1016/j.irl.2019.06.001>

Publications in numbers

Output type	Classification	#
Articles in journals	Refereed	21
	Non-refereed	1
	Professional	0
	Popular	0
Books or book chapters	Refereed	1
	Non-refereed	0
	Professional	0
	Popular	0
Conference proceedings		0
PhD theses		1
Total		24

Article in journal – refereed

Almås, I, Attanasio, O, Caeyers, B, Jervis, P, Ringdal, C & Somville, V 2019, 'Om foreldres investeringer i barns utvikling', *Magma*, vol. 2019, no. 6, pp. 33-39.

Arango-Aramburo, S, Acevedo, Y & Sonnemans, J 2019, 'The Influence of the Strength of Financial Institutions and the Investment-Production Delay on Commodity Price Cycles: A Framed Field Experiment with Coffee Farmers in Colombia', *De Economist*, vol. 167, no. 4, pp. 347-358. <https://doi.org/10.1007/s10645-019-09343-z>

Celse, J, Max, S, Steinel, W, Soraperra, I & Shalvi, S 2019, 'Uncertain lies: How payoff uncertainty affects dishonesty', *Journal of Economic Psychology*, vol. 71, pp. 117-125. <https://doi.org/10.1016/j.joep.2018.09.003>

Conroy-Beam, D, Buss, DM & Köbis, NC 2019, 'Contrasting Computational Models of Mate Preference Integration Across 45 Countries', *Scientific Reports*, vol. 9, 16885. <https://doi.org/10.1038/s41598-019-52748-8>

Engelmann, JB, Meyer, F, Ruff, C & Fehr, E 2019, 'The neural circuitry of affect-induced distortions of trust', *Science Advances*, vol. 5, no. 3, aau3413. <https://doi.org/10.1126/sciadv.aau3413>

Engelmann, JB, Schmid, B, de Dreu, CKW, Chumbley, J & Fehr, E 2019, 'On the psychology and economics of antisocial personality', *Proceedings of the National Academy of Sciences of the United States of America*, vol. 116, no. 26, pp. 12781. <https://doi.org/10.1073/pnas.1820133116>

Gordon-Hecker, T, Pittarello, A, Shalvi, S & Roskes, M 2019, 'Buy-one-get-one-free deals attract more attention than percentage deals', *Journal of Business Research*. <https://doi.org/10.1016/j.jbusres.2019.02.070>

Gortner, P & van der Weele, JJ 2019, 'Peer effects and risk sharing in experimental asset markets', *European Economic Review*, vol. 116. <https://doi.org/10.1016/j.eurocorev.2019.04.001>

He, S, Offerman, T & van de Ven, J 2019, 'The power and limits of sequential communication in coordination games', *Journal of Economic Theory*, vol. 181, pp. 238-273. <https://doi.org/10.1016/j.jet.2019.02.004>

- Hoven, M, Lebreton, M, Engelmann, JB, Denys, D, Luigjes, J & van Holst, RJ 2019, 'Abnormalities of confidence in psychiatry: An overview and future perspectives', *Translational Psychiatry*, vol. 9, 268. <https://doi.org/10.1038/s41398-019-0602-7>
- Ikink, I, Engelmann, JB, van den Bos, W, Roelofs, K & Figner, B 2019, 'Time ambiguity during intertemporal decision-making is aversive, impacting choice and neural value coding', *NeuroImage*, vol. 185, pp. 236-244. <https://doi.org/10.1016/j.neuroimage.2018.10.008>
- Köbis, NC 2019, 'Assortative mating and the evolution of desirability covariation', *Evolution and Human Behavior*, vol. 40, no. 5, pp. 479-491. <https://doi.org/10.1016/j.evolhumbehav.2019.06.003>
- Lebreton, M, Bacily, K, Palminteri, S & Engelmann, JB 2019, 'Contextual influence on confidence judgments in human reinforcement learning', *PLoS Computational Biology*, vol. 15, no. 4, e1006873. <https://doi.org/10.1371/journal.pcbi.1006973>
- Leib, M, Moran, S & Shalvi, S 2019, 'Dishonest helping and harming after (un)fair treatment', *Judgment and Decision Making*, vol. 14, no. 4, pp. 423–439.
- Leib, M, Pittarello, A, Gordon-Hecker, T, Shalvi, S & Roskes, M 2019, 'Loss framing increases self-serving mistakes (but does not alter attention)', *Journal of Experimental Social Psychology*, vol. 85, 103880. <https://doi.org/10.1016/j.jesp.2019.103880>
- Mazyaki, A & van der Weele, JJ 2019, 'On esteem-based incentives', *International Review of Law and Economics*, vol. 60, no. 105848. <https://doi.org/10.1016/j.irl.2019.06.001>
- Ringdal, C & Sjørusen, IH 2019, 'Investeringer i barns utdanning: Bryr kvinner seg mer enn menn?', *Magma*, vol. 2019, no. 6, pp. 26-32.
- Schwardmann, P & van der Weele, JJ 2019, 'Deception and Self-Deception', *Nature Human Behaviour*, vol. 3, no. 10. <https://doi.org/10.1038/s41562-019-0666-7>
- Shalvi, S 2019, 'Financial temptation increases civic honesty', *Science*, vol. 365, no. 6448, pp. 29-30. <https://doi.org/10.1126/science.aax5034>
- Vainapel, S, Weisel, O, Zultan, R & Shalvi, S 2019, 'Group moral discount: Diffusing blame when judging group members', *Journal of Behavioral Decision Making*, vol. 32, no. 2, pp. 212-228. <https://doi.org/10.1002/bdm.2106>
- van Veelen, M & García, J 2019, 'In and out of equilibrium II: Evolution in repeated games with discounting and complexity costs', *Games and Economic Behavior*, vol. 115, pp. 113-130. <https://doi.org/10.1016/j.geb.2019.02.013>

Book chapter - refereed

- Engelmann, JB, Mulckhuijse, MGJ & Ting, CC 2019, Brain measurement and manipulation methods. in Schram and Ule (eds): *Handbook of Research Methods and Applications in Experimental Economics*, page 142-172
- Sonnemans, Joep and Ailko van der Veen 2019 Software and laboratory organization . in Schram and Ule (eds): *Handbook of Research Methods and Applications in Experimental Economics*, page 335-348
- De Dreu, Carsten K.W. and Jörg Gross 2019 Homo oeconomicus with a personality – trait-based differences in decision making. In Schram and Ule (eds): *Handbook of Research Methods and Applications in Experimental Economics*, page 214-232

Dissertation – internally prepared

- Sun, J. (2019). *Tell Me How To Vote: Understanding the Role of Media in Modern Elections*.

Activities

Talk or presentation

- Arthur Schram (Speaker), Gender Differences in Credit Attribution to Joint Work, 23 May 2019.

Nils Köbis (Participant), Interdisciplinary Corruption Research Forum, 13 Jun 2019.

Arthur Schram (Speaker), A New Crowdfunding Mechanism, 5 Jul 2019.

Ivan Soraperra (Speaker), Shooting the Messenger? Supply and Demand in Markets for Willful Ignorance, 18 Aug 2019 → 22 Aug 2019.

Charlotte Ringdal (Participant), Subjective Probability, Utility, and Decision Making 2019, 18 Aug 2019 → 22 Aug 2019.

Nils Köbis (Participant), Subjective Probability, Utility, and Decision Making 2019, 18 Aug 2019.

Charlotte Ringdal (Participant), ESA 2019, 4 Sep 2019 → 7 Sep 2019.

Ivan Soraperra (Speaker), Shooting the Messenger? Supply and Demand in Markets for Willful Ignorance, 4 Sep 2019 → 7 Sep 2019.

Publication peer-review and editorial work

Arthur Schram (Reviewer), British Journal of Political Science (Journal)

Arthur Schram (Reviewer), Management Science (Journal)

Shaul Shalvi (Editor), Journal of Personality and Social Psychology (Journal)

Shaul Shalvi (Editor), Organizational Behavior and Human Decision Processes (Journal)

Joep Sonnemans (Editorial Board) Journal of Economic Psychology

Joep Sonnemans (Editorial Board) Quantitative Economics

Theo Offerman (Associate editor) Games and Economic Behavior

Theo Offerman (Editorial board) Experimental Economics

Membership academies

Arthur Schram (Member) of Université de Lyon (External organisation), Lyon, France

Prize

Shalvi, S., Jean Beattie Award (The European Association for Decision Making's mid-career award), 22 Aug 2019.

11. MARKETS & ORGANIZATIONS

Programme director: Prof. dr. R. Sloof
 Section: Microeconomics
 JEL-classification: L
 Starting date: 2005
 Website: www.ase.uva.nl/mo

11.1 Members of the research group and research in FTEs

<i>Name</i>	<i>Title</i>	<i>Function</i>	<i>Total 2017</i>	<i>Total 2018</i>	<i>Total 2019</i>	<i>Funding</i>
Baarsma, B.E.	prof. dr.	guest	0,00	0,00	0,00	1
Buser, T.	dr.	ud	0,53	-	0,07	2
Buser, T.	dr.	uhd	0,17	0,50	0,46	1
Dominguez Martinez, S.	dr.	ud	0,00	0,07	0,20	1
Hinloopen, J.	prof. dr.	hgl	0,00	-	-	1
Hinloopen, J.	prof. dr.	guest	-	0,00	0,00	1
Kiss, A.	dr.	ud	0,50	0,50	0,60	1
Klein, T.	msc	phd	0,80	0,80	0,67	1
Lee, N.	dr.	ud	-	-	0,00	1
Onderstal, S.	dr.	ud	0,30	0,20	-	1
Praag, C.M. van	prof. dr.	hgl	0,00	0,00	0,00	1
Schinkel, M.P.	prof. dr.	hgl	0,25	0,50	0,50	1
Seldeslachts, J.	dr.	ud	0,00	0,00	0,00	1
Sloof, R.	prof. dr.	hgl	0,50	0,50	0,50	1
Sun, J.	msc	phd	0,80	0,67	-	1
Treuren, L.	msc	phd	0,27	0,80	0,80	1
Ven, J. van de	dr.	uhd	0,50	0,50	0,50	1
Yuan, H.	msc	phd	-	0,27	0,80	1
Total 1st flow of funds			4,09	5,31	5,03	
Total 2nd flow of funds			0,53	0,00	0,07	
Total 3rd flow of funds			0,00	0,00	0,00	
Total 1st f.o.f. excl. Ph.D.'s			2,22	2,77	2,76	
Total all flows of funds			4,62	5,31	5,10	
Ph.D. students			1,87	2,54	2,27	

11.2 Programme design

Objectives

Broadly defined, the research program 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 programs 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 program 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 behavioural 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.

Industrial Organization, Competition Policy & Regulation

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 nature of 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. Finally, a recent line of research focuses on detecting (coordinated) manipulation of benchmark interest rates like Libor and Euribor.

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.

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, group 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. Finally, recent research attention has been devoted to crowdfunding, where the focus is how to best structure it as to maximize funding. Here a theory driven (mechanism design) approach is combined with experimental testing in the lab.

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.

Organizational Economics

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.

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 for instance people often care about how well they fare relative to others.

Economics of Entrepreneurship

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. In a recent study also future entrepreneurs and future managers are compared in terms of (among others) their temporal preferences.

11.3 Programme evaluation

Turnover

In December 2019 former PhD student Junze Sun successfully defended his thesis titled “Tell Me How to Vote: Understanding the Role of Media in Modern Elections”. In the fall of 2019 Junze joined the European University Institute in Florence as a postdoc financed by a Max Weber fellowship.

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). The group is well-embedded in ASE and in the Tinbergen Institute; group members thus have co-authored papers with many members from other ASE research groups. The research performed by the group is not only of high quality (with key publications appearing in very good journals), but also very visible and of great practical importance (e.g. the work of Schinkel on the Dutch mortgage market and the manipulation of labor). Some of the group members have close links with governmental bodies such as ministries and antitrust agencies.

Weaknesses: There is too little coherence in the broad research program. The group is not very prominent in the arena of theoretical industrial organization and contract theory. The group has not been very successful in attracting external research grants. Compared to the other two research programs within the microeconomics section, the program has a less well defined and characteristic overarching profile (perhaps partly due to the Organizational Economics branch formerly being part of the Human Capital program as well as the close connections with CREED).

Opportunities: The master tracks most closely connected to the group’s research program (Managerial Economics and Strategy, Markets and Regulation) are stable to growing in size and a new track on Competition Policy has been added in recent years. The research program thus has a logical counterpart in teaching and thereby also a sound basis to grow.

Threats: The group has a small-scale, with quite some turnover in the last years. With the transfer of Sander Onderstal to the Amsterdam Business School in the fall of 2018 the program becomes even smaller and the link between the constituting Markets and Organizations parts becomes weaker.

Societal relevance

Research by the group on the deterrence effects of merger policy tools and the effectiveness of leniency programs 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 advice 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). Jeroen Hinlopen has recently become Deputy Director at the CPB.

11.4 Resources and Funding

- Standard funding from TI and ASE-RI
- Funding from research priority area 'Behavioural Economics' for data gathering
- ERC-starting-grant Buser (per December 2019)
- Use of and access to CREED lab

11.5 Output

Key publications

Boswijk, H. P., Bun, M. J. G., & Schinkel, M. P. (2019). Cartel Dating. *Journal of Applied Econometrics*, 34(1), 26-42.

Bremzen, A., Khokhlova, E., Suvorov, A. and J. van de Ven. (2015). Bad News: An Experimental Study on the Informational Effects of Rewards, *Review of Economics and Statistics* 97, 55-70.

Buser, T., & Yuan, H. (2019). Do women give up competing more easily? Evidence from the lab and the Dutch Math Olympiad. *American Economic Journal: Applied Economics*, 11(3), 225-252.

Czibor, E., and S. Dominguez Martinez (2019). Never too late: Gender quotas in the final round of a multistage tournament. *Journal of Law, Economics, and Organisation*, 35(2), 319–363.

Duso T., Röller L., Seldeslachts J. (2014). Collusion through joint R&D: An empirical assessment. *Review of Economics and Statistics* 96 (2), 349-370.

Haan, de T., Offerman, T. and R. Sloof, (2017), Discrimination in the labor market: The curse of competition between workers, *Economic Journal* 127, 1433-1466.

Forthcoming

Belot, M & van de Ven, J 2019, 'Is dishonesty persistent?', *Journal of Behavioral and Experimental Economics*, vol. 83, 101464. <https://doi.org/10.1016/j.socec.2019.101464>

Charness, G, List, JA, Rustichini, A, Samek, A & Van De Ven, J 2019, 'Theory of mind among disadvantaged children: Evidence from a field experiment', *Journal of Economic Behavior and Organization*, vol. 166, pp. 174-194. <https://doi.org/10.1016/j.jebo.2019.08.025>

Czibor, E, Onderstal, S, Sloof, R & van Praag, CM 2020, 'Does relative grading help male students? Evidence from a field experiment in the classroom', *Economics of Education Review*. <https://doi.org/10.1016/j.econedurev.2019.101953>

He, S, Offerman, T & van de Ven, J 2019, 'The power and limits of sequential communication in coordination games', *Journal of Economic Theory*, vol. 181, pp. 238-273. <https://doi.org/10.1016/j.jet.2019.02.004>

Publications in numbers

Output type	Classification	#
Articles in journals	Refereed	7
	Non-refereed	0
	Professional	2
	Popular	2
Books or book chapters	Refereed	0
	Non-refereed	0
	Professional	0

	Popular	0
Conference proceedings		0
PhD theses		0
Total		11

Article in journal – refereed

Belot, M & van de Ven, J 2019, 'Is dishonesty persistent?', *Journal of Behavioral and Experimental Economics*, vol. 83, 101464. <https://doi.org/10.1016/j.socec.2019.101464>

Boswijk, HP, Bun, MJG & Schinkel, MP 2019, 'Cartel Dating', *Journal of Applied Econometrics*, vol. 34, no. 1, pp. 26-42. <https://doi.org/10.2139/ssrn.2860613>, <https://doi.org/10.1002/jae.2660>

Buser, T & Yuan, H 2019, 'Do women give up competing more easily? Evidence from the lab and the Dutch Math Olympiad', *American Economic Journal: Applied Economics*, vol. 11, no. 3, pp. 225-252. <https://doi.org/10.2139/ssrn.2867346>, <https://doi.org/10.1257/app.20170160>

Charness, G, List, JA, Rustichini, A, Samek, A & Van De Ven, J 2019, 'Theory of mind among disadvantaged children: Evidence from a field experiment', *Journal of Economic Behavior and Organization*, vol. 166, pp. 174-194. <https://doi.org/10.1016/j.jebo.2019.08.025>

Czibor, E & Dominguez Martinez, S 2019, 'Never too Late: Gender Quotas in the Final Round of a Multistage Tournament', *Journal of Law, Economics, & Organization*, vol. 35, no. 2, pp. 319–363. <https://doi.org/10.1093/jleo/ewz003>

He, S, Offerman, T & van de Ven, J 2019, 'The power and limits of sequential communication in coordination games', *Journal of Economic Theory*, vol. 181, pp. 238-273. <https://doi.org/10.1016/j.jet.2019.02.004>

Koudstaal, M., Sloof, R. and C.M. van Praag, 2019, Entrepreneurs: Intuitive or contemplative decision makers? *Small Business Economics* 53, 901-920.

Professional publications

Schinkel, MP, Onderstal, AM, Tieben, B & Behrens, C 2019, 'ACM toont de kleren van Mona Keijzer in postfusie', *Economisch Statistische Berichten*.

Schinkel, MP & van Wijnbergen, SJG 2019, 'Staatssecretaris bijt Waakhond', *Economisch Statistische Berichten*.

Academic article - popular

Schinkel, MP & Onderstal, AM 2019, 'Voorkom een monopolie, de postzegel zal veel te duur worden', *NRC Handelsblad*.

Schinkel, MP, Onderstal, AM, Tieben, B & Behrens, C 2019, 'De postfusie biedt geen enkel maatschappelijk voordeel', *Financieel dagblad*.

12. SEO ECONOMIC RESEARCH

Programme title	SEO Amsterdam Economics
Name programme director	prof. dr. B. ter Weel
JEL-Classification	I, J, L, Q, R
Website	www.seo.nl

12.1 Members of the research group and research in ftes

<i>Name</i>	<i>Title</i>	<i>Function</i>	<i>Total 2017</i>	<i>Total 2018</i>	<i>Total 2019</i>	<i>Funding</i>
Scientific Staff SEO						
Koopmans, C.C.	prof. dr.	hgl	0,53	0,80	0,80	3
Tieben, L.A.W.	dr.	oz	-	0,75	1,00	3
Weel, B. ter	prof. dr.	hgl	1,00	1,00	1,00	3
Global Economics						
Appelman, R.	msc	oz	0,56	-	-	3
Belt, T.	msc	oz	-	-	0,92	3
Bergh-Spinakova, V.						
van den	drs.	oz	-	0,84	0,07	3
Jongerius, D.	msc	oz	-	0,96	0,35	3
Keijser, D.D.	msc	oz	-	-	0,92	3
Oomes, N.A.	dr.	oz	1,00	1,00	1,00	3
Labour & Education						
Berg, E. van den	drs.	oz	1,00	1,00	1,00	3
Biesenbeek, C.	msc	oz	-	0,67	-	3
Bisschop, P.	msc	oz	1,00	1,00	1,00	3
Bussink, H.	msc	oz	-	0,17	1,00	3
Graaf, D. de	drs.	oz	-	1,00	0,84	3
Heyma, A.O.J.	dr.	oz	1,00	1,00	1,00	3
Kesteren, J.	msc	oz	-	-	0,29	3
Koppejan, A.	-	oz	-	-	0,14	3
Megens, L.A.	drs.	oz	0,67	-	-	3
Stolp, T.H.	dr.	oz	-	-	0,42	3
Ven, K. van der	msc	oz	-	0,63	1,00	3
Vervliet, T.	msc	oz	-	0,17	1,00	3
Werff, S.G. van der	msc	oz	1,00	1,00	1,00	3
Zwetsloot, I.	msc	oz	1,00	1,00	1,00	3
Financial markets and Finance						
Biesenbeek, C.	msc	oz	1,00	-	-	3
Hers, J.F.P.	drs.	oz	0,58	1,00	1,00	3
Hof, B.J.F.	drs.	oz	-	0,71	0,78	3
Kerste, M.W.M.	drs.	oz	0,33	-	-	3
Rougoor, W.	msc	oz	1,00	1,00	1,00	3
Veld, D. in 't	dr.	oz	-	0,63	-	3
Verheuveld, N.	msc	oz	-	0,33	1,00	3
Vlaanderen, M.	msc	oz	-	-	0,17	3
Witteman, J.P.	msc	oz	1,00	1,00	1,00	3

Health Care & Social Security						
Kok, L.M.	drs.	oz	0,84	0,84	0,84	3
Kroon, L.V.	msc	oz	1,00	1,00	1,00	3
Lammers, M.	msc	oz	1,00	0,84	0,84	3
Luiten, W.	msc	oz	-	0,17	1,00	3
Odding, A.C.M.	msc	oz	-	-	0,25	3
Scholte, R.S.	drs.	oz	1,00	0,17	-	3
Schwartz, T.J.	msc	oz	-	-	0,75	3
Tempelman, D.C.G.	drs.	oz	0,95	0,95	0,32	3
Vriend, S.	dr.	oz	-	1,00	0,67	3
Competition & Innovation						
Behrens, C.	msc	oz	0,92	-	1,00	3
Bentham, M. van	dr.	oz	1,00	0,25	0,58	3
Brouwer, E.	prof. dr.	hgl	0,33	1,00	1,00	3
Buiren, K.B. van	drs.	oz	1,00	-	-	3
Buunk, E.	msc	oz	0,58	-	-	3
Fijnje, J.C.	msc	oz	1,00	-	-	3
Hof, B.J.F.	drs.	oz	0,95	0,24	-	3
Jong, G. de	msc	oz	-	0,21	1,00	3
Klooster, E.L. van 't	msc	oz	-	-	0,21	3
Koeman, N.	msc	oz	-	0,25	1,00	3
Rosenboom, N.	msc	oz	1,00	-	-	3
Smits, T.C.	msc	oz	1,00	0,44	1,00	3
Tieben, L.A.W.	drs.	oz	1,00	0,25	-	3
Veld, D.L. in 't	dr.	oz	1,00	0,24	0,83	3
Aviation Economics						
Boonekamp, T.	msc	oz	1,00	1,00	1,00	3
Burghouwt, G.	dr.	oz	0,75	-	-	3
Jongeling, A.	msc	oz	-	-	0,25	3
Kempen, T.	drs.	oz	0,15	-	-	3
Lieshout, R.B.T.	drs.	oz	1,00	1,00	1,00	3
Spijker, V. van	msc	oz	1,00	-	0,83	3
Zuidberg, J.	msc	oz	1,00	1,00	1,00	3
Total 1st flow of funds			0,00	0,00	0,00	
Total 2nd flow of funds			0,00	0,00	0,00	
Total 3rd flow of funds			32,14	28,51	37,07	
<hr/>						
Total 1st f.o.f. excl. Ph.D.'s			0,00	0,00	0,00	
<hr/>						
Total all flows of funds Ph.D. students			32,14	28,51	37,07	
			0,00	0,00	0,00	

12.2 Programme design

SEO Amsterdam Economics was established in 1949, by the Economic Faculty of the University of Amsterdam, to encourage applied research. SEO is one of the Netherlands' oldest economic research agencies. SEO Amsterdam Economics was transformed into a foundation independent from the University in the 1980s, although it preserves close links with the academic community and the University.

Our clients are many and varied: we work for ministries, private companies and institutions in the non-profit sector, both nationally and internationally. SEO Amsterdam Economics is independent. We are not linked to specific interests and operate in a non-partisan way. In general, SEO reports are made public to guarantee our independence and scientific quality.

SEO Amsterdam Economics is a medium-sized organisation. We have a scientific staff of about 50, the majority of whom are economists and econometricians.

Structure

SEO Amsterdam Economics consists of six research units. A first unit is **Labour & Education** which specialises in in-depth labour market analysis, research into education and the evaluation of policy. Research topics include employability, the 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 unit **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 public sector as well. The unit's research and advice focuses on three areas: (1) financial regulation (2) financing of public activities, and (3) the interaction between the public and private sector.

The unit **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 unit specialises among others in market analyses, assessments of the effectiveness of policy, cost-benefit studies and the development of budgeting and costing systems.

SEO Aviation Economics advises governments, airlines, airports, financial institutions and other interested parties on economic issues related to aviation. The unit's 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 **Competition and Innovation Economics** unit specialises in the economic analysis of market regulation, innovation policy, 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.

The unit of **Global Economics** performs research on macro-economic issues related to international trade and development and advises international institutions on their programmes.

Organisation

SEO Amsterdam Economics is governed by a six-member Supervisory Board. Day-to-day policy is carried out by the managing director and the deputy director. Moreover, SEO has a management team, which consists of the directors and the unit heads. SEO Amsterdam Economics also has an Advisory Board which meets yearly to review its research programme.

12.3 Programme Evaluation

Academic publications by researchers are often a spin-off of research for clients. This year 13 articles have been published in refereed journals or books. The number of non-refereed academic publications was substantial.

In 2019 SEO researchers published 88 commissioned reports, and 21 papers have been published in more popular outlets and newspapers.

12.4 Resources and Funding

SEO Amsterdam Economics does not receive any funding from the University or any other institution. All funds are raised by performing research for clients. SEO stimulates researchers to engage in science.

Researchers at SEO Amsterdam Economics publish regularly in national and international professional journals.

SEO holds an NEN-EN ISO 9001:2008 quality certificate for Applied Economic Research and Consulting.

12.5 Output

Key publications

Bisschop, P., Kastoryano, S., & Klaauw, B. van der (2017). Street prostitution zones and crime. *American Economic Journal: Economic Policy*, 9(4), pp. 28-63.

Akcomak, I.S., Webbink, D. & Weel, B. ter (2016). “Why did the Netherlands develop so early? The legacy of the Brethren of the Common Life,” *Economic Journal*, vol. 126, no. 593, pp. 821-860.

Scholte, R., Van den Berg, G.J., Lindeboom, M. (2015). Long-run effects of gestation during the Dutch Hunger Winter famine on labor market and hospitalization outcomes. *Journal of Health Economics* 39, pp. 17–30.

Lammers, M. (2014). The effects of savings on reservation wages and search effort. *Labour Economics*, 27(2014), 83-98.

Aalbers, R., Shestalova, V. & Kocsis, V. (2013). Innovation policy for directing technical change in the power sector. *Energy Policy*, 63, 1240–1250.

Publications in numbers

Output type	Classification	#
Articles in journals	Refereed	12
	Non-refereed	28
	Professional	10
	Popular	7
Books or book chapters	Refereed	1
	Non-refereed	0
	Professional	0
	Popular	0
Reports	Professional	88
Conference proceedings		0
PhD theses		1
Total		147

Article in journal – refereed

Biesenbeek, C. & Werff, S. van der (2019). Public-Private Wage Differentials: Evidence from the Netherlands, *De Economist*, 167(1), pp. 23-43.

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- Koopmans, C. (2019). Innovatiebeleid: Rijk, regio of beide? Een betoog op basis van economische literatuur en de Nederlandse context, *TPEdigitaal 11 (3)*, pp. 20-30.
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- Lammers, M. & Kok, L. (2019). Are active labor market policies (cost-) effective in the long run? Evidence from the Netherlands. *Empirical Economics*, pp. 1-28.
- Jong, G. de, Behrens, C., Herk, H. van & Verhoef, E. (2019). Domestic Market Power in the International Airline Industry, *Transportation Science*, 53(3), pp. 796-810.
- Rosenboom, N. & in 't Veld, D. (2019) The Interaction of Public and Private Cartel Enforcement, *World Competition*, 42(1), pp. 87–120.
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Article in journal - non-refereed

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- Bisschop, P., Berg, E., van den & Ven, K. van der (2019). Rijke ouders uit de Randstad betalen vaker voor bijles en huiswerkbegeleiding, in: *Economische Statistische Berichten*, 104(4780), p. 576.
- Boonekamp, T. & Spijker, V. van (2019). Spoorvervoer slechts deels alternatief voor luchtvaart, in: *Economische Statistische Berichten*, online gepubliceerd <https://esb.nu/kort/20047596/spoorvervoer-slechts-deels-alternatief-voor-luchtvaart>
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- Voncken, E., Van den Berg, E., Coppens, K. De Graaf, D. Meng, C., Mulder, J. (2020, te verschijnen). Vernieuwing vmbto: méér dan een nieuw jasje, De Nieuwe Meso, 7.1.
- Jong, G. de, Koeman, N. & Behrens, C. (2019). Meederheid bedrijven heeft nog weinig last van Brexit, in: Economische Statistische Berichten online gepubliceerd <https://esb.nu/kort/20055397/meederheid-bedrijven-heeft-nog-weinig-last-van-brexit>
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Article in journal – professional

Koopmans, C., M. van Benthem, W. Hulsker en W. Spit (2019). ICT-projecten van de overheid: Omgaan met onzekerheid. *TPEdigitaal* 13(2), p. 50-59.

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Book / book chapter – refereed

Werff, S. van den & Weel, B. ter (2019). Hoofdstuk 4: Werkenden in de kluseconomie in Nederland, *Dynamiek op de Nederlandse Arbeidsmarkt*, pp. 64-76.

Report – academic

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Report – professional

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- Bentham, M. van, Koeman, N. & Tieben, B. (2019). *Beleidsdoorlichting Agrobeleid. SEO-rapport 2019-41*. Amsterdam: SEO
- Berg, E. van den & Bisschop, P. (2019). *Lof doet de leraar goed. SEO-rapport 2019-102*. Amsterdam SEO
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Activities

Talk or presentation

Bas ter Weel, 'Goede mensen gezocht', 't Lokaal, House of Skills, 21 mei, Wormerveer.

Carl Koopmans, *Maatschappelijke kosten-batenanalyse*, Inspectie Justitie en Veiligheid, 17 december, Den Haag.

Carl Koopmans, *Economendebat Innovatie*, economie & maatschappelijke vooruitgang, Ministerie van Economische Zaken en Klimaat en Rabobank, 30 oktober, Utrecht.

Carl Koopmans, *Maatschappelijke kosten en baten van de digitale overheid*, 11 juli, Den Haag.

Carl Koopmans, *Beleidsdoorlichtingen belicht*, VIDE Evaluatorennetwerk, 26 maart, Den Haag.

Carl Koopmans & Christiaan Behrens, *The future of car use*, Tinbergen Institute, 28 februari, Amsterdam.
 Christiaan Behrens, *From silver to platinum: the effect of frequent flier tier levels on demand* European Aviation Conference, 7 november, Wenen.

Christiaan Behrens, *Datagedreven toezicht* Seminar mededingingsrecht in de digitale economie AKD, 17 september, Amsterdam.

Christiaan Behrens, *Marktwerking na de fusie? Impact op grootgebruikers en eindgebruikers van postdiensten*, VGP Kennis & Netwerk Plaza, 6 juni 2019, Almere.

Christiaan Behrens, *Aanbesteding in het personen vervoer*, 8 maart, Den Haag.

Djoerd de Graaf, *Langetermijneffecten plusklassen*, Onderwijs Research Dagen, Heerlen, 26 juni 2019.

Gerben de Jong (2019) *Flight inefficiencies caused by airspace disruptions*, ATRS World Conference, Amsterdam. Gerben de Jong (2019) *From Silver to Platinum: the effect of frequent flier tier levels on airline demand*, Eureka Seminar Vrije Universiteit, Amsterdam.

Gerben de Jong (2019) *National carriers, market power and consumer loyalty*, Doctoral defence, Vrije Universiteit Amsterdam.

Henri Bussink, *Leerrechten doorgerekend*, VNO-NCW, 9 oktober 2019 Henri Bussink, *Leerrechten doorgerekend*, Ministerie van OCW, 2 juli 2019 Henri Bussink, *Leerrechten doorgerekend*, MBO Raad, 24 juni 2019

Henri Bussink, *Leerrechten doorgerekend*, SER, 28 mei 2019

Jelle Zwetsloot, *verkenning effecten verhoging minimumjeugdloon*, CBS.

Jelle Zwetsloot, *Ongelijke kansen bij overgang van mbo naar arbeidsmarkt voor jongeren met een niet-westerse migratieachtergrond*, DNB.

Johannes Hers, *Vermogensopbouw over de levensloop*, NVB

Johannes Hers & Nils Verheuveel, *Risicokader staatsschuld*, Stuurgroep beleidsdoorlichting risicokader staatsschuld, Ministerie van Financien

Joost Zuidberg, *Connectivity and its hub function*, 28 februari, Schiphol's Network Planning Society, Haarlem. Joost Zuidberg, *Airport charges and taxes benchmarking*, 24 mei, ACI Economics Committee, Toulouse.

Joost Zuidberg, *Hub connectivity as an indicator for hub performance*, 7 november, World Aviation Conference, Seoul. Lucy Kok, *Wajong*, 31 Oktober, Ministerie Sociale Zaken en Werkgelegenheid en UWV.

Nienke Oomes, *Policy Evaluation of Tax Policy Programmes and Policies*, 19 november, Belastingdienst, Utrecht

Nienke Oomes, *Tax incentives: what works and what does not?*, 19 november, Belastingdienst, Utrecht

Nienke Oomes, *Qualitative Interviews and Focus Group Discussions*, 29 oktober, Kandy Consulting Group, Sri Lanka Nienke Oomes, *Exploring migration between Africa and Europe in the long term*, 13 april, Koninklijk Instituut voor de Tropen.

Nienke Oomes, *The International Monetary Fund: History, Goals, Functions, and Critiques*, 25 februari, Universiteit van Amsterdam.

Nienke Oomes, *De Chinese Dollar*, 6 februari, VPRO Tegenlicht, Pakhuis deZwijger <https://dezwijger.nl/programma/de-chinese-dollar>

Rogier Lieshout, *Economisch belang luchtvaart*, 4 september, ELTA-100 Symposium. Rogier Lieshout, *The importance of airport capacity to Dutch society*, 18 juli, Airneth seminar. Rogier Lieshout, *Fuel (in)efficiency of ultra long-haul flights*, 4 juli, ATRS congres Amsterdam.

Rogier Lieshout, *Relevance of aviation and the optimal level of flight supply*, 13 juni, Limits to growth Symposium, Breda University of Applied Sciences.

Rogier Lieshout, *Climate targets and their impacts on aviation*, 4 juni, Masterclass Duurzame Luchtvaart TU Delft/NLR.

Rogier Lieshout, *Environmental impacts of airspace inefficiencies and disruptions*, 6 maart, A4E Summit Brussel. Siemen van der Werff, *De opkomst en groei van de kluseconomie*, DNB afdeling EOB, 14 januari 2019.

Thijs Boonekamp, *Toekomst van luchtvaart*, Trail jaarcongres.

Tobias Vervliet, 'Effecten lage-inkomensvoordeel (LIV)', CBS Microdatagebruikersmiddag

Ward Rougoor, 'Blended Finance' en meer algemeen de toekomst van ontwikkelingsamenwerking', Economendag, DNB.

Relevant position

Behrens, C. (2019). Lid van Editorial Board, Transport Policy. Behrens, C. (2019). Universitair Docent, Vrije Universiteit, Amsterdam. Behrens, C. (2019). Lid van Editorial Board, Transport Policy.

Koopmans, C. (2019). Hoogleraar, Vrije Universiteit, Amsterdam.

Koopmans, C. (2019). Lid van de Beleidsevaluatiecommissie (BEC) van de ministeries van Economische Zaken en Klimaatbeleid en Landbouw, Natuur en Voedselkwaliteit.

Koopmans, C. (2019). Lid van de Monitorcommissie van de ministeries van Economische Zaken en Klimaatbeleid en Landbouw, Natuur en Voedselkwaliteit.

Koopmans, C. (2019). Lid van de Commissie Beleidsevaluatie van het ministerie van Financiën.

Koopmans, C. (2019). Lid van de Wetenschappelijke adviesraad van het tijdschrift TPEdigitaal.

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Koopmans, C. (2019). Voorzitter van de beoordelings- en promotiecommissie van Martin Adler (Vrije Universiteit).

Jong, G. de (2019). Gastonderzoeker afdeling Ruimtelijke Economie, Vrije Universiteit, Amsterdam.

Quotes/interviews

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Bert Hof en Ward Rougoor geïnterviewd over 'Doet de Gedragscode Kleinzakelijke Financiering wat hij moet doen? Een eerste meting', *nvb.nl*, online gepubliceerd <https://www.nvb.nl/bank-wereld-online/doet-de-gedragscode-kleinzakelijke-financiering-wat-hij-moet-doen-een-eerste-meting/>

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Carl Koopmans geïnterviewd over 'Met 32 miljoen kan je alle arme Nederlandse kinderen nieuwe schoenen geven' door Thomas van Dijk, *Volkskrant*, 9 april.

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Carl Koopmans geïnterviewd over 'de kosten van de OV staking', *NOS.nl*, <https://nos.nl/artikel/2286807-dertigduizend-mensen-bij-manifestaties-voor-beter-pensioen.html>

Christiaan Behrens geïnterviewd over 'Luchtvaartmaatschappijen gebruiken cookies om online de prijs van vliegtickets aan te passen', *nu.nl*, online gepubliceerd <https://www.nu.nl/weekend/5964393/nuclecht-geen-bewijs-dat-cookies-de-prijs-van-vliegtickets-beïnvloeden.html>

Joost Zuidberg geïnterviewd over 'De achterkant van uw betaalbare vlucht: Schiphol draait op goedkope arbeidskracht', *De Volkskrant*, online gepubliceerd <https://www.volkskrant.nl/economie/de-achterkant-van-uw-betaalbare-vlucht-schiphol-draait-op-goedkope-arbeidskracht~bda1fb5c/>

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Joost Zuidberg geïnterviewd over 'de vliegvelden strijdt, economie leiding kwijt' door Rori Hendrix, *Nieuwsredactie*, online gepubliceerd <https://nieuwsredactie.fhj.nl/index.php/2019/04/26/eeuwige-vliegvelden-strijd-economie-de-leiding-kwijt/>

Joost Zuidberg geïnterviewd over 'Weinig invloed Airport op keuze bestemmingen' door Rob Burg, *Eindhoven Dagblad*, 17 januari.

Nienke Oomes geïnterviewd door FD Mediagroep (FD Effect i.s.m. BinckBank) over "Wordt 2020 een goed jaar om te beleggen?", 1 december 2019

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Lucy Kok geïnterviewd over 'Dag extra werken? Eerst kijken wat dat kost aan kinderopvang' door Marit Willemsen. 23-5-2019. NRC

Lucy Kok geïnterviewd over 'Jonggehandicapte werkt nu, maar is wel armer' door Christiaan Pelgrim, 23-10-2019. NRC.

Interview BNR nieuwradio over stageplaatsen in de zorg 28-10-2019

Lucy Kok geïnterviewd over 'Jonggehandicapten werkt nu, maar is wel armer' door Christiaan Pelgrim, *NRC Next*.

Paul Bisschop geïnterviewd over 'Aanvullend onderwijs', *Financieel Dagblad*.

Paul Bisschop geïnterviewd over 'Salarissen leraren', *Intermediair*.

Rogier Lieshout geïnterviewd over 'Hoe Amerikaanse heffingen de Europese vliegtuigindustrie (en ticketprijzen) raken, *NOS nieuws*.

Rogier Lieshout geïnterviewd over 'Turbelancias en los cielos europeos', door Idefe Martin, *NIUS*, 3 oktober.

Rogier Lieshout geïnterviewd over 'De toekomst van luchtvaart', door Paul van Wezenberg, *Reiswereld*.

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