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Interview with Herman van Dijk, new General Director of Tinbergen Institute

Besides his appointment as General Director, Herman van Dijk is professor of Econometrics at Erasmus University Rotterdam. Through the years, he has served on various administrative boards of Tinbergen Institute, including the Examination Board and Job Placement Committee. As an economist, his main research interests include Bayesian inference using computational techniques, time-series econometrics, neural networks, and income distributions.

Congratulations, first of all, on your appointment as the General Director of the Tinbergen Institute starting 1st of March 2008. Considering your previous experience on various boards at Tinbergen Institute, what will be your new responsibilities as General Director of the Tinbergen Institute, and how will you share the tasks with the Director of Graduate Studies, Jaap Abbring?

To a certain extent, it will just be a continuation of the responsibilities that Maarten Janssen had. The Director of Graduate Studies, Jaap Abbring, is responsible for the daily activities of the graduate school. My challenge is to take TI to still a higher level—in particular, to establish the connection with Duisenberg School of Finance (DFS), and to see how we can give a good structural basis to the connection between TI and DFS.

Another challenge is to determine whether there is another field or fields in which TI should try to make a step forward. Although finance has been identified as a potential field in this respect, there should be strategic discussions regarding other field(s) that might represent opportunities.
for expansion of TI’s sphere. Strategy is, I think, very important for a Director’s position. I have great confidence in the present staff, so I think that TI’s internal organization is already very good.

What do you envision TI’s relationship to be with the Duisenberg School of Finance, the newly started finance school in which EUR, VU and UvA also participate?

The challenge is indeed to give a structural basis to this connection. TI has an excellent graduate program. I understand that Jaap Abbring has already developed a solid program for finance for the Duisenberg School. TI’s strength lies in the talented group of young researchers at the Institute. The real challenge is to give these individuals high-level learning facilities and, more generally, to attract leading academics in finance and economics to come and teach here in Amsterdam and Rotterdam.

How do you view your responsibilities as General Director with regard to the current position and future of Tinbergen Institute compared to other leading graduate schools?

A number of years ago, when I approached Coen Teulings with the offer to become director of TI, he asked me what I considered to be the most important part of TI.

My answer was, and is, that as three schools of economics we want to have very advanced courses at the frontier of economic science for PhD students. This has always fascinated me. For me, the second-year courses of the US graduate schools are where you always look to see the frontier of economic science—which is so important for a graduate school—and we have to have that situation here. I would also like to give research fellows more facilities. I’d like them to have more money to attract foreign visitors and to be able to organize workshops and other activities.

Another important issue concerns TI criteria for accepting researchers as TI members. There are not many female fellows in the Institute. What do you think about TI criteria and about adjusting them for gender?

The procedure of using the TI criteria for publications for the selection of research fellows began during my first period at TI, around 1993. These criteria are merely tools, selection tools. Ideally, a research fellow (or a candidate research fellow) submits some kind of a short application (an A4, perhaps) describing what he or she has done intellectually and what he or she delivered in terms of publication in top journals. Counting publications is thus a tool, but we have to be careful that the tool does not take the place of the substance of research. To get tenure at universities in the US, you have to not only have top publications but also summarize what you have contributed in terms of substance of scientific results. If you have several publications, that’s fine—and certainly necessary, but it’s not sufficient.
you also have to say: “this is what I have contributed”. This, I think, is important.

With regard to gender, when I give seminars and lectures in the Mediterranean countries such as Spain, Italy, and in southern France, then I observe quite a number of female researchers, especially in statistics and econometrics. Similarly, here in the program of econometrics (where I used to teach), there are many more young female researchers and students now than there were 15-20 years ago. Over the next 15 years I think that we can expect to see more female faculty, and hopefully more female research fellows of TI. My ideal is that we will attract a greater number of high-quality female faculty members through the high level of training that we offer to all young researchers. By the way, I don’t think that the gender issue is just within TI. It’s in economics: not just in Europe, but also in the US. I’ve just come from Harvard, where the economics faculty includes full professor Susan Athey (who has agreed to give the TI lectures in 2009), a young, very successful and extremely well-known female researcher. Even at Harvard, however, there’s still a majority of male researchers. Positive discrimination may perhaps add one person to the ranks, but the challenge is to get more female masters and PhD students, to train more female researchers, and in that way to get more female research fellows in our program. Simple positive discrimination, in my estimation, does not work very well, but the key is training, which is certainly a longer-term proposition.

Throughout the years, you have served in a number of important administrative positions in many research institutes (such as Chairman of the Executive Board at TI, and director of Econometric Institute). You also have a broad international network, have co-authored many publications with other top researchers and have visited top research institutes in the US and Europe. How do you think these experiences might affect your new position at TI?

I hope that we can profit from them. For TI, the institute’s position in Europe is important. In the Netherlands, people are sometimes overly concerned about the ranking between the Dutch universities. But for me, the European Union is our primary playing field, where we want to remain among the top-five graduate schools in economics. We certainly will try to excel also outside Europe, and we should go to India and China to get talented students, but our first step should be within Europe. Of course, we’ll want to go one step further and see whether this is possible. The Jorgenson committee evaluated TI as a leading institution in continental Europe, and the challenge will be to proceed from there. My network may be of some use here.

What do you mean by ‘going one step further’? Do you mean being a top, leading institute?

The Jorgenson report contains more information on this. This ‘one step further’ will take on a more structural nature through the Duisenberg School. Given extra funding, we can hire additional faculty, and we can give more PhD fellowships. At the top level of science, you need money; it’s like all the other fields of life. You see it in sports and in culture also—like the famous Philharmonic orchestras. We should learn from them.

Coming back to my network, though: the London School of Economics has a Master program and a PhD program, which are highly regarded. To a certain extent, they are similar to TI’s graduate program (MPhil and PhD); perhaps we can still learn from the experience of a top school like LSE. Certain connections in a network might therefore be useful.

Returning to your scientific track record, you are among the leading researchers in Bayesian Econometrics, with many fundamental contributions (such as the development of Importance Sampling), and you are also an honorary fellow of TI. Could you briefly summarize how your research agenda has evolved through years? What type of research do you hope to pursue in years to come?

I can say already that I certainly plan to do a lot of research in the next few years. I’m now working on a number of papers and certainly intend to pursue research. Then there’s my editorial work: it’s just been decided, for instance, that I will be co-editor (jointly with John Geweke and Gary Koop) of the Handbook of Bayesian Econometrics, which will entail plenty of work.

As for my research agenda: I initially worked extensively on simulation algorithms in the Bayesian set-up. These algorithms were needed because of the non-standard structure of models. What do I mean by “non-standard models”? The simplest explanation is that in science we are interested in what the effect is of X (education, for instance) on y (economic growth, for instance). Usually, we say that this effect is constant, so that we can simply write y=βX. In many economic models, however, that effect is usually a ratio or a product of deeper structural parameters. The famous multiplier in old-fashioned Keynesian models is also an example, as is the case with
mean-reversion processes in macroeconomics and finance.

After I had done certain algorithmic work on how to do inference in that kind of situation, I became interested in the theoretical issues and wanted to know why econometric models exhibit this kind of strange behaviour. I then did a lot of work on this with Frank Kleibergen. What we did is regularization of these ill-behaved models. There is a certain analogy with physics, where they referred to problems such as those we analysed as *ill-posed problems or ill-behaved models*. When this occurs in physics, scientists go back to the laboratory and build a better model; in economics, however, we have to live with some of those ill-behaved models. So I worked on finding a way to regularize these kinds of strange model structures; I studied how to study regularization.

Recently I’ve returned to algorithms on simulation methods. The computational revolution that has occurred in many of the natural sciences and even psychology is also important for economics, where we can simulate complex systems. The latest work simulates these economic processes (mixture processes, neural networks etc.).

Applications of this research can be found in the field of macroeconomics and finance, so I’ve done things hedging currency risk, risk of a liquidity trap, mean reversion in macro and finance, etc. Model Averaging also has its appeals. To summarize, my work is sound “Rotterdam Econometrics”: a great deal of theory with applications—always that combination.

After these achievements, one would expect that your productivity would slow down, at least to some extent, but we see that your productivity has even accelerated, as you have had many published and forthcoming papers in top journals in recent years. What is the secret behind this?

(Pointing to a little sculpture, featuring some people arm-in-arm standing on a platform put on pillars, which he got from Erasmus University) I got this from Philip Hans Franses, and it means: together at a high level. That is what I would like to see talented youth doing. I have worked with a number of such talented youth, which has been important. Three of my PhD students are now full professors, and the fourth is expected shortly to become a full professor.

How long do you plan to be the director of TI, and how will TI have changed by then?

It is a three-year commitment, and the position is a building position. Building up a reputation takes 15 to 20 years, so I can only add a small step. I hope to be able to contribute two things. First of all, I hope that we can make a small step forward from the present stable position. Secondly, I hope that we can lay the foundation for a large step forward in the long run.

My work is sound “Rotterdam Econometrics”: a great deal of theory with applications—always that combination.
Last year, the European Research Council introduced Starting Grants, which fund the work of young researchers (between the second- and ninth years after their PhD thesis defence). While over 9000 researchers applied for such a grant, only about 250 proposals have thus far been awarded. Bas van der Klaauw was the only economist in the Netherlands to receive a grant. For the next five years, he will spend his budget of about €925,000 on building a research group. The grant will allow him to hire PhD students, postdocs and research assistants.

The research that will be carried out expands on some of my recent publications, and deals with the evaluation of active labour market policies. It is well known that governments spend huge amounts on active labour market policies. The Dutch government is no exception, with annual expenditures over €5 billion. A recent article in the Dutch newspaper De Volkskrant (January 30, 2008) argued that most of this money is spent ineffectively. In particular, it was claimed that most active labour market policies do not increase the job-finding rates of unemployed workers. This conclusion coincides, to some extent, with the findings obtained from a recent survey on the effectiveness of active labour market policies in Europe (Kluve et al., 2007). It should be noted, however, that only a very limited literature uses the appropriate econometric techniques.

The economics literature often argues that the relatively generous unemployment benefit schemes in Europe cause moral hazard problems. Unemployed workers devote insufficient effort to job search and are too selective in accepting jobs. This causes European reemployment rates to be low compared to those in, for example, the US. The most straightforward policy to overcome such moral hazard problems would be to expose benefit recipients to strict job-search requirements and to monitor job-search behaviour. Van den Berg and Van der Klaauw (2006) investigated the effects of job-search counselling and monitoring on the reemployment of unemployment insurance
recipients. For the actual evaluation of this policy, a randomised experiment was set up. Half of the workers who applied for unemployment insurance benefits during some observation period were randomised into this policy. The other half of the applicants did not get any treatment.

Randomised experiments often provide an ideal setting for policy evaluation. A simple comparison of the sample means of the outcome variables in the treatment- and control group reveals the average treatment effects. One therefore does not have to rely on advanced econometric techniques and arbitrary assumptions regarding the process by which treatment is assigned. The table below shows that with counselling and monitoring weekly about 4.3% of the individuals find work (while this is 4.2% in the control group). Since the main goal of the policy was to stimulate reemployment, the conclusion may be drawn that the policy was not very successful.

The lack of any stimulating effect from job-search counselling and monitoring may imply that the policy does not change the behaviour of the unemployed workers. It is certainly possible, however, that job-search behaviour may actually be changed, but does not affect the reemployment rate. In this light, note that in the absence of counselling and monitoring, the first wage after unemployment is on average more than 4% higher, while the average unemployment insurance benefit was slightly lower. This suggests that the unemployed workers that are exposed to counselling and monitoring indeed feel somewhat restricted in their behaviour. They dislike being unemployed more than the unemployed workers in the control group do; they are thus less selective regarding the job they are willing to accept, which leads them to have a lower reservation wage.

A closer look at the behaviour of the unemployed workers reveals that counselling and monitoring causes them to use more formal job search and less informal job search. Formal search describes job search that can be monitored by the caseworker of the unemployment insurance agency, such as reacting to job advertisements or registering at the public employment office. Caseworkers typically dislike informal job-search efforts, such as writing open application letters or contacting former colleagues or work contacts. Caseworkers find it much more difficult to judge whether the total amount of job-search effort meets the guidelines of the unemployment insurance agency or whether the unemployed worker mainly uses informal job search. This is a clear example of the classical principal-agent setting, in which the principal observes only a part of the agent’s effort.

Does this, then, imply that counselling and monitoring is a bad policy? The economic literature often argues that informal job search is more effective than formal job search for short-term unemployed workers with good labour market prospects. Former colleagues and work relations may have greater insight into the skills of the unemployed worker, and may know which jobs represent the best match for these skills. In the long run, however, unemployed workers may lose such contacts, which causes the informal search channel to become less important for long-term unemployed workers. Counselling and monitoring thus may not necessarily represent such a bad policy—although it can be said that the measures are badly targeted. Target them, instead, in a later stage of unemployment, when unemployed workers mainly use formal job-search channels, and the policy could be effective in stimulating reemployment, as these individuals cannot then substitute informal search effort for formal effort.

The discussion above could be translated into a formal job-search model with multiple search channels. Whereas the key advantage to using a formal economic model is that it allows for evaluation of counterfactual policies, this is useful only if the model provides an adequate description of the data. It is therefore important to note that about 44% of the unemployed workers in the study’s sample received in their first job a wage below their unemployment insurance benefit—and about 46% of the individuals moved to a second job within half a year of finding the first job. The wage in the second job is most often substantially higher than that in the first job, implying that the first job is often a stepping-stone towards better jobs.

<table>
<thead>
<tr>
<th></th>
<th>Treatment group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reemployment rate</td>
<td>0.043</td>
<td>0.042</td>
</tr>
<tr>
<td>Post-unemployment wage</td>
<td>€406</td>
<td>€423</td>
</tr>
<tr>
<td>UI benefits level</td>
<td>€384</td>
<td>€380</td>
</tr>
<tr>
<td>Use of formal search</td>
<td>0.79</td>
<td>0.52</td>
</tr>
<tr>
<td>Use of informal search</td>
<td>0.79</td>
<td>1.00</td>
</tr>
</tbody>
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Note: All numbers relate to weekly equivalents.
Since on-the-job search is important, this should be taken into account in the structural model.

The goal of this research project is not only to formulate a theoretical model describing the job-search behaviour of unemployed workers, but also to estimate this model. Even though the data contain sufficient information to identify the model, it will be no trivial exercise to actually estimate the model. Advanced econometric techniques, such as simulated maximum likelihood (which was used in Frijters and Van der Klaauw, 1996), will have to be used to estimate a non-stationary job-search model.

Once the model has been estimated, an interesting counterfactual policy may involve replacing the counselling and monitoring by a reemployment bonus scheme. Providing counselling and monitoring costs about €150 per unemployed worker, but saves monthly about €18 on the eligibility check. A reemployment bonus scheme with comparable costs would be to reward an unemployed worker who finds work within one month with a bonus of €150, and to reduce this amount monthly by €18. The economic literature has established that financial incentives work well to stimulate the reemployment of unemployed workers. For the US, Meyer (1995) finds positive effects of reemployment bonuses on reemployment. For the Netherlands, Abbring et al. (2005) and Van den Berg et al. (2004) find a substantial effect for punitive benefit reductions.

The discussion above provides an introduction to the proposed research. The intention is to focus on more active labour market policies and to learn about their effectiveness and underlying labour market dynamics. This should help to improve the practice of active labour market policies, not only by obtaining better insights into the causal effects, but also by targeting more efficiently the policies aimed at helping particular subpopulations of unemployed workers.

Could you please tell us how your journey to destination Full professor in Economics began? Was it something you saw yourself doing all along? How did you start in research?

When I started out, I didn’t think I would end up doing research in the long run, even though I had worked as a research assistant while I was an undergraduate and Masters student. After getting my Masters in econometrics, I started working as a financial analyst for Procter & Gamble. After two weeks of working there, I knew that P&G was not for me in the long run, as the work didn’t require any creativity. After having worked there for a year, I decided to do research as a PhD student on entrepreneurship. This was a strange topic back then: labour economists did interesting research, but it applied only to the employed part of the working population. I wanted to answer the same type of questions for the tenth of the working population that start their own firms, and to explore how these entrepreneurs affect economic outcomes. Joop Hartog and Mars Cramer, who supervised my master thesis, became my PhD supervisors.

References

It seems that upon returning to the university to do your PhD you found your fit. Was there a sense of ‘belonging’?

Yes, there was. I really shared the interests of the people in the microeconomics department in doing research to better understand individuals' labour market decisions and performance. This applied type of research, which also made use of my theoretical econometrics background, was fascinating. It fit into my idea of econometrics being a sort of toolbox. During the time that I worked as a PhD student in this applied research environment (in which I studied the determinants of successful entrepreneurship), I also worked as a new business consultant for Intomart, a marketing research company. My task was to sell new research projects to clients based on econometrics and existing data and to teach some econometrics to the other employees (mainly psychologists and sociologists at that time). I was like a one-eyed person in the land of the blind. The dream was to gather a large dataset about entrepreneurship (choices and performance) that was commercially useful and scientifically relevant. The combination of the two work environments, academia and practice, was ideal.

In January 1996, a couple of weeks before I defended my PhD thesis, I joined the Boston Consulting Group (BCG). That was my second (or shall I say third?) stint out of academia. There were actually two reasons to finally quit after three years. First of all, I missed academic research; twice I took unpaid leave for a month to do research. Second, I became a mother. I was the first mother at the Dutch office of BCG (of course, male consultants had children). I found it rather difficult to deal with the long working hours, and still be the kind of mother I wanted to be—although I did become the first part-time consultant ever at BCG.

Meanwhile, I had received several phone calls from the economics faculty of the University of Amsterdam, asking me when I planned to return. Until then, I had always assured them that I had no plans to return. But now my inclinations had changed, and I accepted a position offered by the Dean as associate professor of the Economics of Organization—a rather new field at the time that had yet to be developed—at the Business School.
How does one combine work and family life in academia?

It’s easier in academics, since the work is so much more independent and flexible. You work hard as an academic, but where and when you work is much less important. You have lectures, of course, but you know that a year or so in advance. In consultancy, you need to travel and manage client teams, and still do your own work.

Why, then, are there so few female economics professors in the Netherlands?

I think it must be economics, in particular, that has few Dutch female professors. Henriette Maassen van den Brink (UvA) and Jenny Ligthart (Tilburg) come immediately to mind, but there must be more. In business studies there are a few others. It’s hard to say why there are so few. Perhaps one factor is that women may be less single-minded (although this thought is not based on any research that I know of). In academia you need to focus.

So how does that work for you?

I’m not very single-minded either, unfortunately. I like to combine doing research with other things. Recently, for example, I founded the Amsterdam Center for Entrepreneurship (ACE) at the UvA—a cooperative initiative with Fortis and KPMG. ACE’s mission is to improve the entrepreneurial climate in the Netherlands based on research and by means of higher education. We perform research in relevant areas of entrepreneurship and ‘translate’ this and the research done by other academics for a broader public. Policymakers and entrepreneurs do not read scientific journals. ACE gets a forum for research results by organizing conferences and roundtables for and together with policymakers, entrepreneurs, managers of large firms, academics and students. We also publish a series of ‘Entrepreneurship Updates’ that include small and readable booklets about research. Moreover, we organize international academic conferences. With regard to education, ACE has started a minor program in Entrepreneurship. An important part of the curriculum is that student teams set up their own business venture, alongside their academic coursework. We recently received (together with, among others, VU University Amsterdam) a grant of 6 million euro, out of which 0.8 million is for research and the rest is for education-related purposes. The grant will be spent on wider access to, and improved quality of, entrepreneurship education programs in higher education. This coincides with my main research interest: the role of education for entrepreneurship. The aim of ACE is thus to carry out (academic) research, provide education and diffuse scientific ideas.

But do you believe that education is essential for entrepreneurship?

Contrary to popular belief, research indicates that the returns to education are higher for entrepreneurs than for employees, whereas education does not determine selection into entrepreneurship. In my column in a Dutch Financial newspaper (Het Financieele Dagblad) I asked readers to “guesstimate” what percentage of top entrepreneurs (which we defined properly for them) have an academic degree. Four thousand people reacted, and more than 60% of the respondents thought that the percentage was below 20%. Actually, it is 62%. This is indicative of the gap between reality and perception. Of course, the fact that such a high percentage of top entrepreneurs have an academic degree is no evidence of a causal relationship between education and entrepreneurial performance. People choose whether they want to become an entrepreneur or an employee, and their educational levels are not determined randomly, either. However, using various identification strategies, we consistently find the returns to education to be higher for entrepreneurs than for employees. The gap between reality and perception in the Netherlands suggests the existence of an information problem. Our drive to teach entrepreneurship (and make the phenomenon known) to university students is strongly related to this gap.

Are large firms interested in participating in your training program?

To a certain extent, large firms won’t see stimulating entrepreneurship as advantageous to their interests. It means that the labour supply diminishes, and that competition in the labour market increases. Still, large companies are interested: they want their own employees to be entrepreneurial.

How will you be able to evaluate the success of the minor in entrepreneurship?

Well, we don’t have a control group—since we didn’t want to turn down half of the applicants! Hessel Oosterbeek and I conducted an evaluation of a specific entrepreneurship education program in a large Dutch vocational college (HBO). These schools have the scale to do that.
The evidence suggests that the program has no effect, or may even have a negative effect, as executed in the research location, on the development of entrepreneurial competencies and attitudes. In further research we would like to vary (exogenously) team size and diversity and compensation of the team and individuals.

What are your other research interests?

Performance measurement and rewards. Firms choose which performance measures they use for the remuneration of their board or management; these measures are endogenous. Casual evidence suggests that agents find ways to improve the measurement outcome, without necessarily improving the company’s performance. It’s not outright fraud, but gaming. Agents redirect their effort to (measured) performance. Randolph Sloof and I are working on a paper that proves this in the setting of corporations. By the way, the same thing is happening in academia. It’s a shame that so little policy-relevant and even firm-relevant research in economics is diffused to a broader audience. This is the logical consequence of the incentives and performance measures that are used in the academic world and that are almost solely based on research output—which is also important, of course.

In connection with a previous article of yours, written with your father, do you think TI should correct for first letter of last name, considering there are benefits of having your last name start with a letter at the beginning of the alphabet*?

Definitely. I can even give you the formula, if TI would like to have it.

Using various identification strategies, we consistently find the returns to education to be higher for entrepreneurs than for employees.

Note

* See Mirjam van Praag and Bernard van Praag, ‘First author determinants and the Benefits of being Professor A (and not Z): An empirical analysis of non-alphabetic name ordering among economics authors’. Economica, forthcoming.
Letters from Alumni
life after the PhD thesis defense

At home in the investment industry
Bart Oldenkamp*
Cardano

During my PhD research at Tinbergen Institute, I developed a keen interest in both the theory of derivatives and its applicability. I was fortunate that during the last period of my research, my adviser, Ton Vorst, encouraged me to team up with two leading practitioners in my area, visionaries who were equipped with a solid academic background.

Upon graduation, I realized that the ultimate test of my research would be to apply it to real money. So I accepted a position at ABN AMRO Asset Management, within a group that had recently been launched to deliver precisely the solutions that were the subject of my thesis—products intended to manage (downside) risks of client portfolios. I stayed with ABN AMRO for the next nine years and enjoyed every minute of it—from getting to know all of the nitty-gritty details of using options in real life and setting up a research group, to helping develop products and find distributors in the US market, to eventually heading up this group of 35 professionals.

Not too long ago, I realized that large organizations like ABN AMRO have, in the long run, a difficult time keeping specialists happy, as they often implicitly expect their staff to climb the corporate ladder. So I started to look for opportunities elsewhere. This eventually led me to accept the position of managing director at Cardano, a small, entrepreneurial firm based in Rotterdam. Cardano advises large clients on derivatives and risk management solutions, and then supports them in the implementation. We seek to reduce funding risks (for e.g. pension plans) by applying the body of academic research on hedging and pricing derivatives that has been developed in the last 30 years. Using derivatives has become much more common now that pension plans and insurers have to value their assets and liabilities on a market-value basis, rather than against a fixed discount rate.

With hindsight, I can see that I have been fortunate: my research area was embraced fully by the investment industry within quite a brief period. In the years since my graduation I have remained close to my original thesis research, and my current job is in many ways even closer to my thesis than the work I did during the nine years in between—not in the least since my wife Emoke (who graduated from TI in 2002) and I are both working again for the same employer, based in Rotterdam!
Should managers receive options as part of their pay package?

Top managers of listed firms typically receive compensation packages that consist of a fixed salary, shares of the company they manage, and options on such shares. This paper analyses the optimal structure of such a compensation package—seeking, in particular, to establish the optimal balance between options and stock.

The paper adapts the standard compensation model that has been widely used in the literature. According to this model, executives receive variable pay (i.e., stock and options) in order to motivate them to work hard and to manage the firm in the interest of shareholders. Using publicly available data on the compensation of US CEOs, the paper first calculates the incentives and the utility that the observed contract generates for the manager. A search is then made for an alternative contract that provides the same incentives and the same utility to the manager, but that costs the firm less than the observed contract does. This procedure was carried out for each of the 598 CEOs in the sample. Firms could save, on average, 20% of the compensation costs if they would not give any options to the managers. Instead, firms should provide incentives by awarding more stock, and (because shares are more valuable than options) managers should receive less fixed salary.

A main contribution of the paper is a new calibration method that allows calculation of the optimal contract for an individual manager. The paper’s results can be explained in two ways: If the standard compensation model is correct, then the evidence from this study implies that compensation practice is grossly inefficient and needs to be fixed. Alternatively, it could be argued that compensation practice is efficient. The evidence in this paper would then indicate that the standard model fails to capture important features of executive compensation.


Constant savings rates and quasi-arithmetic population growth under exhaustible resource constraints

The Dasgupta-Heal-Solow-Stiglitz (DHSS) model extends the well-known Solow model with a non-renewable resource. It is suited to investigate the role of capital accumulation and resource depletion in an intertemporal setting. The questions that are addressed concern the characterization of the utilitarian optimum and the feasibility of a positive maximin program, meaning a program with positive constant per capita consumption, and therefore utility. It was found by e.g. Stiglitz that with a Cobb-Douglas production function and without technological change, the latter question could be answered in the affirmative if population growth is absent and the production elasticity of capital is large relative to the production elasticity of the non-renewable resource. Under the same conditions the answer is negative in the case of exponential population growth.

This paper considers an alternative population growth specification, namely quasi-arithmetic growth. This allows for a positive, but declining growth rate, with population going to infinity. The following equivalence is shown: if an efficient path has constant (gross and net of population growth) savings rates, then population growth must be quasi-arithmetic and the path is a maximin or a classical utilitarian optimum. Conversely, if a path is optimal according to maximin or classical utilitarianism (with constant elasticity of marginal utility) under quasi-arithmetic population growth, then the (gross and net of population growth) savings rates converge asymptotically to constants.

Geir B. Asheim (University of Oslo), Wolfgang Buchholz (University of Regensburg), John M. Hartwick (Queen’s University, Kingston), Tapan Mitra (Cornell University) and Cees Witvagen (VU University Amsterdam and Tilburg University), 2007, Constant savings rates and quasi-arithmetic population growth under exhaustible resource constraints, Journal of Environmental Economics and Management 53: 2, 213-229.

Will corporate tax consolidation improve efficiency in the EU?

Companies operating across the internal market are currently hampered by tax obstacles such as high compliance costs for cross-border operations, transfer pricing and the lack of cross-border loss compensation. These obstacles are inherent in the current system of separate accounting, where the corporate income of foreign subsidiaries of multinational enterprises is treated separately for tax purposes. In its 2002 Tax Communication, the European Commission proposed consolidation of the tax base as a solution. The consolidated base has to be apportioned to the member states in order to guarantee their ability to tax corporate income.

This study uses a computable general equilibrium model to perform a numerical assessment of the economic effects of consolidation. The model captures the main features of corporate income taxation in EU member states and the United States. It includes the investment and labour-demand decisions of both multinational enterprises (MNEs) and domestic firms. The model also allows for a welfare analysis, by considering the optimal response of households to changes in taxes and factor rewards.

The proposed consolidation reduces compliance costs for enterprises that operate internationally. Moreover, if the tax base is consolidated, then shifting paper profits across jurisdictions becomes meaningless. Whereas the
consolidation delivers these gains, it also, unfortunately, contains two distortionary elements.

First, the apportionment of the consolidated base to the member states creates new possibilities for MNEs to minimise their tax obligations by shifting economic activity across jurisdictions. Although real economic activity (such as FDI) can be shifted less easily than paper profits can, its economic impact is larger. This reallocation reduces welfare.

The second distortion is introduced if the common tax base is optional, or if not all firms are allowed to participate. When firms operating in the same jurisdiction (MNEs or domestic firms) face different tax rules, the playing field is no longer level, which leads to a significant reduction of GDP, employment and welfare.

The findings in this study indicate that the gains from a reduction in compliance costs and the elimination of transfer pricing are offset by the efficiency losses from reallocation. Corporate tax revenues decline by about 2%, on average, as a result of reallocation towards countries with more favourable tax schemes. The resulting gains in GDP and welfare are small: 0.05% and 0.01% of GDP, respectively. Around this average, member states with relatively low tax rates and a broad tax base gain from consolidation, whereas others lose.

The gains from consolidation can be grasped fully only if it is mandatory for all firms and if it is accompanied by a harmonisation of the tax rate. Simulations of this far-reaching scenario show that a welfare gain between 0.1% and 0.2% of GDP can be obtained.

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By A. van der Horst (CPB), L. Bettendorf (EUR) and H. Rojas-Romagosa (CPB), Will corporate tax consolidation improve efficiency in the EU? T1 2007-076/2

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Modelling the structure of high-frequency time series

Financial time series jump around—certainly from month to month or from day to day. Nowadays, also higher frequency series are available, which most of the time move only incrementally—in five-minute intervals, for example. But sometimes they jump...

Modelling the structure of such high frequency time series is the topic of this article. The smoothness of standard returns is retained, but the possibility for jumps is left explicitly in the model. Other common characteristics (of periods of higher- and lower volatility, for instance) are also accommodated.

The advantage of a model-based approach is that it provides a more detailed look into the evolution of a series: it’s as if we’re using a new and stronger microscope. Existing methods provided good resolution at the daily frequency, but this new approach can be used to measure an intra-day drift in the Euro/US Dollar exchange rate. Indeed, the Dollar is found to depreciate in the morning, and to appreciate slightly again in the afternoon. Though the effect is small, it is still significant. Such an application only begins to showcase the strength of the method. This more detailed method could be used to take a closer look at such events as the double dip of the US interest rates that Bernanke explored in January 2008, allowing us to see how its effect rippled through other financial series, in the minutes and hours after the event.

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By Charles S. Bos (VU), Model-based Estimation of High Frequency Jump Diffusions with Microstructure Noise and Stochastic Volatility, TI 2008-011/4

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Health and income across the life cycle and generations in Europe

How does the distribution of health evolve over the life cycle, and how is it changing across generations? Given the context of rapidly ageing populations, this is a highly relevant question, particularly for governments, pension providers and health insurers in Europe. Knowledge of the way in which the distribution of health changes over the course of the life cycle is key to understanding individual behaviour and to making policy with regard to pensions, health financing, and health and social care. In order to be able to monitor and project trends in population health accurately, it is essential that evidence be found of generational differences in health.

This paper employs an age-cohort decomposition approach in an attempt to disentangle life cycle- and generational effects in 11 European Union countries for the mean level of self-reported health, the overall dispersion in self-reported health, and the association between income and self-reported health.

First and not surprisingly, average health is found to decline steadily with age. Beyond the age of 70, the deterioration accelerates, suggesting that there may currently be a substantial physical constraint on increasing the retirement age beyond 70. The results also indicate that average self-reported health has been improving over recent generations in southern Europe and in Ireland, but not in northern Europe. The gains in adult health for younger generations in southern Europe may be the result of more marked improvements over the course of the last century in childhood health conditions in southern Europe. Second, the results indicate that the inequality in self-reported health has declined dramatically in Europe—but most of all in the southern European countries and Ireland, which adds to the north/south divide that was found for mean health. Finally, no evidence could be uncovered of a falling association between income and health across generations. While this may be considered a failure, it should be judged alongside the US evidence of increasing socio-economic inequality.

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By Hans van Kippersluis (EUR), Tom Van Ours (EUR), Owen O’Donnell (University of Macedonia) and Eddy van Doorslaer (EUR), Health and income across the life cycle and generations in Europe, TI 2008 – 009/3
Dynamic efficiency of product market competition

Firms compete either through the prices they charge for their products (Bertrand competition) or with the quantities they produce (Cournot competition). In the latter case, total production is taken to the market and a fictitious auctioneer sets a price such that total supply is, in fact, bought. Examples of markets with Cournot competition include furniture, agricultural products, concrete, steel and bicycles. Bertrand competition, on the other hand, can be found in markets for software, insurance markets and banking.

This paper compares equilibrium outcomes under Bertrand and Cournot competition. Generally speaking, prices can be adjusted much more quickly than quantities. Bertrand competition is therefore more intense than Cournot competition. Equilibrium prices are therefore higher when firms compete à la Cournot, and the concomitant consumers’ surplus is lower. But this picture changes dramatically when, prior to competition, firms are able to invest in cost-reducing (or process) R&D. Because prices are higher under Cournot competition, firms have a greater incentive to invest in process R&D. As a result, post-innovation costs are lower under Cournot competition than under Bertrand competition. This difference is particularly large when products are not too differentiated, when the R&D process is efficient, and when the free flow of knowledge between innovating firms (the technological spillover) is substantial. In this case, a greater portion of the benefits of any cost reduction is transferred to consumers under Bertrand competition than under Cournot competition. It is then possible that due to the much lower post-innovation costs under Cournot competition the resulting equilibrium price is below the equilibrium price that is obtained under Bertrand competition. In these cases, therefore, the consumers’ surplus is higher under Cournot competition than it is under Bertrand competition.

By Jeroen Hinloopen (UvA) and Jan Vandekerckhove (KU Leuven), Dynamic Efficiency of Product Market Competition, TI 07-097/1

theses

Baring the threads: Social capital, vulnerability and the well being of children in Guatemala

Guatemala is a country of contrasts. The vibrant reds, blues, pinks and purples found in the traditional Mayan textiles, and the range of greens—from lime to forest—of the country’s coffee groves, mimic the diversity of Guatemala’s population, of which the indigenous portion represents almost half of the country’s 11 million inhabitants. This rich cultural presence, environmental diversity and wealth in natural resources nevertheless stand out against the harsh reality that the majority of Guatemalans face today. Over half of the Guatemalan people live in poverty, placing the country below its Central American neighbours and on par with many African nations. Education and health indicators, particularly malnutrition rates, are dismal.

In pursuit of a deeper understanding of the reasons behind these poor socio-economic indicators, this study considers two innovative concepts, social capital and vulnerability, to explain per capita consumption, schooling choices for children of primary-school age, and malnutrition of under-five-year-olds. Social capital, the first of the central two ideas examined in this study, is one measure through which social scientists are making progress in the direction of reaching a more humane world view that includes inter-personal relationships, trust and ties to others. The findings in this study, which uses a quantitative measure of social capital, contradict much of the current literature by demonstrating a negative impact of social capital on mean consumption. In addition, the study reveals a negative impact of social capital on the second innovative variable, vulnerability—measured as the probability of falling below the poverty line. Households appear to use social capital as a form of informal insurance through which to smooth consumption. For the purposes of this study, this finding can be seen as the explanation for decreased average consumption with social capital.

The second half of the study uses social capital and vulnerability to explain school attendance of children of primary-school age and malnutrition in children under the age of five. Children with more social capital in the household are found to be more likely to attend school, while children in households that are more vulnerable to falling below the poverty line in the future are less likely to attend school. Finally, the analysis shows that households appear to protect the nutrition of their youngest children from volatility in consumption, and that long-term malnutrition is not influenced significantly by social capital in the household.

To summarise, the study finds that besides the factors that are traditionally used, there are important additional factors to consider both in explaining household welfare and the well-being of the children and when designing programs aimed at improving the lives of these households and children. These findings are not merely interesting and important contributions to the literature; they are key pieces of the puzzle for policymakers attempting to find the best measures to make a difference in the lives of poor individuals across the developing world today.

Thesis: ‘Baring the threads: Social capital, vulnerability and the well-being of children in Guatemala’ by Emily Gustafsson-Wright
Published in the Tinbergen Institute Research Series # 409

Forecasting financial time series using model averaging

Accurate forecasting of a future event, such as the next Football World Cup triumph of Italy, constitutes a fascinating challenge for econometric research. The econometrician could study the time series of Italian results in the World Cup from the first edition in 1930 and construct a model to infer data and predict the next victory. Alternatively, she could consider the most recent FIFA ranking of the Italian team and use this information to answer the proposed question. Or, she could simply guess. As in this exercise, in many other economic cases a decision maker cannot identify ex ante the true process. This observation has led researchers to introduce several sources of uncertainty in forecasting exercises. In this context, the research reported in this thesis
The study begins by reevaluating the role of structural instability in model averaging, where model averaging is the response chosen to deal with model uncertainty. It is shown that time-varying weight schemes give accurate forecasts in the presence of unknown structural instability and strong heterogeneity of individual forecasts. These features are typical stylized facts of stock index returns. Indeed, empirical exercises using US stock return data reveal that the predictive gains offered by these averaging schemes are statistically and economically significant over time.

The study continues by focusing on the US term structure. Assumptions are partially different, as individual forecasts are strongly homogenous in this case. Individual models are shown to play a complementary role in approximating the data-generating process, and mitigating model uncertainty by model averaging leads to substantial gains in forecasting performance. The highest accurate forecasts are obtained when a weighting method is used that is based on relative historical performance.

The conclusion: although the implementation of model averaging techniques is not often straightforward, and it depends on the exercise of interest, the predictive gains are substantial over different applications.

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