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PRESENTACIÓ
DE
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PER
SALVADOR BARBERÀ

Economics research in Europe has experienced an accelerated development. Part of it has to do with demography, economic growth and the increase of resources devoted to education in affluent societies. But there are many aspects in the evolution of our profession that could have gone wrong, and yet took a good turn thanks to the action, the determination and the example provided by a few persons.

Today we are celebrating one of them, Profesor Jacques Drèze. He has a lot to do with the positive directions that economics has taken in Europe. His example as a researcher, as an institution builder, as an educator and as a concerned European citizen has provided generations of economists with guidance and direction. He will tell us about his research interests and his concerns and advise for our economies. Hence, my introduction will concentrate on his contributions as a leader of the profession.

In the summer of 2009, a little more than one year from now, about two thousand economists will gather in this Bellaterra campus of UAB and on that of the UPF downtown in order to attend the annual joint meetings of the European Economic Association and of the Econometric Society, organized in cooperation among all the institutions that constitute the Barcelona Graduate School of Economics.

Jacques Drèze was President of the Econometric Society in 1970, and a founder first President in of the EEA.

Founded in 1985, the EEA is an organization that looks both at the intellectual foundations of economics but also at its implications for policy and reform. It is also committed to quality, openness and service, and has contributed in different ways to develop economics in Europe. Its first meeting in Vienna, held in 1986, gathered 600 participants and 150 contributed papers. In last year's joint meetings in Budapest there were ten times more papers, around 1500 papers. Indeed, things have exploded.

But size is not what matters most. The EEA is contributing to give a truly international dimension to our profession, by introducing good practices that keep permeating and help to redress the many bad habits of smaller national communities. It sustains a journal, organizes summer schools, and when time came, it provided great help for Eastern European colleagues to recover their contact with modern

economics. One of its major contributions to internationalization of our profession is to promote mobility by sustaining a job market. (To our pride, the job market structure adopted by the EEA is the one first started by the Spanish Economic Association, whose remote origins are in the Autónoma's Symposia for Economic Analysis). Of course, it could be doing more, and sometimes Professor Drèze has expressed his concern about the role of this baby of his, and how to improve it. But something is and will remain true: that Jacques' first thrust to the EEA, his "chiquenaude primitive", provided the organization with an excellent start.

Let us now turn to the Econometric Society, of which he was also President. It was created much much earlier, in the early nineteen thirties. It has always been a meeting point for economists committed to excellence in any part of the world. Its European Congress met in Barcelona in 1971, and its seventh world congress was also held in our city, in 1990. Its comeback in 2009, hand to hand with the EEA, will be like meeting an old friend. But not as old as it could be, since the first time that the ES had a congress in Spain was much earlier, fifty years ago. This happened in Bilbao, just when the economics department there was being born.



In EEA Bilbao meeting.

A young and hyperactive Jacques Drèze participated in this Bilbao meeting, already a part of the small elite that was to blossom into what are now massive gatherings. The minutes of the Bilbao meeting point out at how much, indeed, our

profession has evolved since then. There were 90 participants and fifteen papers altogether. The proceedings, were published in *Econometrica*, including summaries of the discussions: a total of 22 pages, written in French. I am sure that many of my colleagues, who hate large meetings, would sign up for a chance to attend the 1958 one. I certainly would too. But those who were there must have been proud, over the years, to see economics blossoming from such a small start. And we are certainly proud to have Jacques Drèze here today to recognise the role of those pioneers.

But this involvement in large organizations is not his only contribution to the development of our profession, by any means. An even more fundamental one has consisted in building institutions and programs that have set standards of quality for all of us. In 1966 he was the founder of CORE, a research institute that was, for years, THE place in continental Europe where things did happen. A place for visitors, a place for the creation and exchange of ideas. CORE is still a important research center, although its main success was to loose its monopoly, thanks to its success in setting standards and proving that they could be upheld. In the words of Profesor Drèze himself: “The contribution of CORE to economics in Europe is less the research output produced in-house than the stimulus to others by the simple example that it could be done”. I think that this may not do justice to in-house production, but it is certainly a fact that CORE was an example. It was, in particular, for those of us Europeans who were students in the US in the late sixties and early seventies. Then, the only working papers coming from continental Europe that were available in US departments of economics libraries had CORE’s pale blue covers. This certainly an inspiration for the Bellaterra founders. The first economics Working Papers in Spain started to be published in our department in the mid seventies.

In 1978, CORE joined forces with Bonn and LSC to create the first cooperative European Doctoral Programme, based on cooperation with the best possible partners. Again this is a path that others, including us have taken. Again, yet, Jacques Drèze pioneered on cooperation, this time in connection with graduate education.

All these abilities in organizing have been the consequence of Jacques Drèze enormous authority, based on academic excellence and personal integrity.

Let me illustrate this trait of character by a simple anecdote. In the eighties, I was invited to participate in the evaluation committee for the first grants given to economics within the framework program of the EU. It was a great honor for me to sit on that committee, close to giants like Edmond Malinvaud and Jacques Drèze, and I learned a lot about evaluation, fairness and good practice from participating in this panel. However, the Commission bureaucrats and the politicians in charge seemed to be worried about the standards of behavior of economists, and had imposed a mathematician to chair our meetings, with Professor Malinvaud as vice-chair. At some point, the mathematician left, and a new chairman was needed. Then, a new member was parachuted into our group, an economist that was obviously trusted by the politician in charge. At lunchtime, it became apparent that he had been offered the chair by his friend. In the afternoon, the politician appeared and proposed

the newcomer as chair. I was horrified. We had been guided by Drèze and Malinvaud for over a year, worked with all rigor and fairness: what else did they want? With the proposal and a heavy silence on the table, with all the calm he is able of, Jacques Drèze looked at all of us, and then told the proposer, in very quiet terms that we had a great vice-chair and a natural leader in Profesor Malinvaud, and that we expected him to be our chair. It took one second for the politician to hold back and a few minutes to end the session. The parachuted candidate was never to be seen again in our meetings. Where others would have made a big fuzz or started complicated negotiations, Jacques just stated the truth, called for respect, and held to his convictions.

Respect and inspiration is also what Jacques Drèze transmitted as a teacher. My colleague and former student at CORE, Xavier Martínez Giralte remembers his course in general equilibrium with devotion: his relaxed voice, his ability to show the fundamentals, his probing and stimulating questions. And, above all, the way in which, while distributing the work assignment of the week, he declared “This problem set should take you about three hours of intelligent work”. As Xavier says, after five hours of sweating, you started wondering about yourself!

I will not discuss at length other important characteristics of Jacques Drèze’s personality. But let me just say that he is a consummated sailor and a man of peace.

I will finish with a few words on his research. I am sorry not to have been able to benefit from his guidance and teachings more often, but we were lucky to have him at the Autónoma and in Madrid 1991, as the first invited profesor of a program that was established at that time by the BBV foundation. On that occasion, I introduced him with a few words in Spanish that I will now reproduce in English.

“Jacques Drèze is the autor of many articles and half a dozen books. This is a lot, but many can say the same after a lifetime of work. What makes him much more special is the variety of fields he has worked on, and where he has contributed to push the frontiers of knowledge. He has worked on foundations: game theory, large economies, existence issues. He has made important contributions to public economics, the theory of labor managed economies and the foundations of finance. The behaviour of economic agents under uncertainty has been an underlying thread across much of his work: he has studied its consequences on many dimensions of economic importance, like savings, insurance, investment or employment.

In addition to these microeconomic issues, he has also made contributions to econometrics, in particular from the Bayesian point of view. Not to speak about his work on macroeconomics, both theoretical and policy oriented.

You cannot say that Jacques Drèze is a microeconomist, an econometrician or a macroeconomist; nor that his work is theoretical or applied. He is all of that, a whole economist. When most of us have to cultivate a part of the field and hold to it, even arguing about its importance relative to other plots, he

just embraces the whole. That's it. It sounds simple, but I challenge you to look for a list of people about whom you could say the same".

I would just like to finish with my thanks to the University, for joining us economists in honoring Professor Drèze, and to Professor Drèze for honoring us by accepting this doctorate.

DISCURS
DE
JACQUES H. DRÈZE

Europe's persistent unemployment: is there a way out?

This address will be devoted to a topic that has been on my mind for thirty years, namely ever since unemployment exploded in Europe in the wake of the first oil shock. That historical development had a profound and lasting impact on my research interests and activities. Short of attempting to summarise the resulting work, I will concentrate tonight on a simple issue: are we, as economists, facing squarely the challenge of coping with Europe's persistent unemployment?¹

The issue

Unemployment in Europe was remarkably low in the fifties and sixties. It started rising in the mid-seventies, and has hovered around 9 percent for over two decades now. This persistence of a wastefully high level of unemployment is a major challenge to economists and policy makers alike.

Also, we have seen clear expressions of disenchantment with the EU, quite notably in France and the Netherlands in 2005. If the EU wishes to inspire its citizens again, coping with lasting unemployment is the number one item on the agenda.

Is economic policy in the EU partly accountable for this dismal situation? Alternatively stated, could suitable policies provide a way out of this dismal situation? If so, would the responsibility for such policies rest with the member states, or is there a role for the EU itself?

Before addressing these questions, we provide some readily accessible background information about the diagnostic.

Background

In 2003, the average unemployment rate (henceforth u) was 8.0% for the EU15. There is a sharp difference though between the four "big" continental countries –France, Germany, Italy and Spain– where the average unemployment rate was 9.6% and a group of six countries –Austria, Denmark, Ireland, the Netherlands, Sweden and the UK– where the average was 4.8%, i.e. half as much.²

1. The address is largely based on a proposal developed two years ago with my friend and colleague Henri Sneessens, who would under other circumstances appear as a co-author of the address, and whom I thank cordially for his permission to use the product of our joint work. A binding time constraint did not allow for updating the data and references.

2. The five remaining members of EU15 (Belgium, Finland, Greece, Luxembourg and Portugal) offer contrasted pictures, with Belgium close to the Big Four.

The Big Four account for some 64% of the active population in EU15, compared to 27% for the second group of six. Thus, the Big Four incarnate much of the European unemployment problem! Yet, it is not demonstrated that they followed an inferior route from the viewpoint of the welfare of their citizens³.

The contrast gains special relevance from the observation that the latter six countries had, over the period 1980-2000, pursued labour market reforms that were relatively neglected in the Big Four; see Nickell (2003) and further comments below.⁴

Within the ten countries under consideration (and others), substantial regional disparities prevail. They are illustrated in Table 1, which reports on the distribution of unemployment rates in the 171 (Nuts2) regions making up these ten countries.⁵ Understanding these regional disparities is also part of the research agenda.

Table 1: Regional distribution of unemployment rates

	u<5%	5<u<7.5%	7.5<u<10%	10<u<12.5%	u>12.5%	
Big Four	10 ⁶	29	32	12	19	102
Group of 6	48	18	3	0	0	69

Other disparities deserve attention. One of them concerns age. In every member country of the EU15, the unemployment rate of young members of the labour force (ages 15-24) is roughly twice as high as the overall rate.⁷ This is a significant observation, interpreted by some economists as an indicator of deficient aggregate demand for labour, under rigidity of low wages. At the same time, activity rates among the elderly are low, and the number of inactive but fit early retirees (18 million!) is roughly equal to the number of unemployed, in EU 15.

Another significant disparity concerns the relative unemployment rates of unskilled vs skilled workers. Figure 1 illustrates how the difference between the low-skilled and the average unemployment rates have evolved over time. Although

3. Comparing welfare between France and the US, Daniel Cohen concludes that low-skilled workers are probably better off in France, thanks to the social protection and in spite of the higher unemployment; see "Welfare comparisons across French and US Labour Markets", CEPR DP 2114, 1999.

4. References identified by author and date are collected at the end of the note.

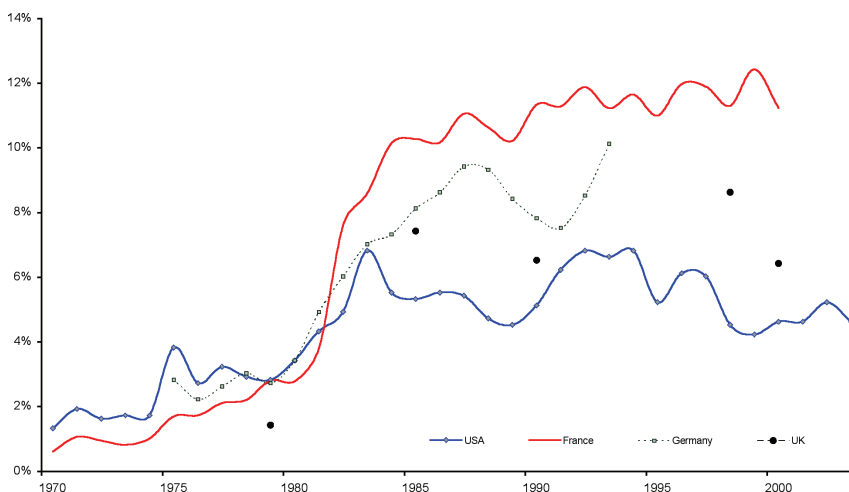
5. Nuts2 refers to a category used by the EU Statistical Office. Four overseas French departments (with u > 20%) are omitted here.

6. All of these are in Northern Italy. But Italy contributes 6 regions with u>12.5%.

7. Main exceptions are Germany (only 1.5 times as high, due to the efficient apprenticeship system there) and UK (2.5 times as high).

partial, the data suggest clearly that the increase has been much stronger in France and Germany (two of the Big Four) than in the US or in the UK.

Figure 1: Low-Skilled unemployment rate
(difference with aggregate unemployment rate)



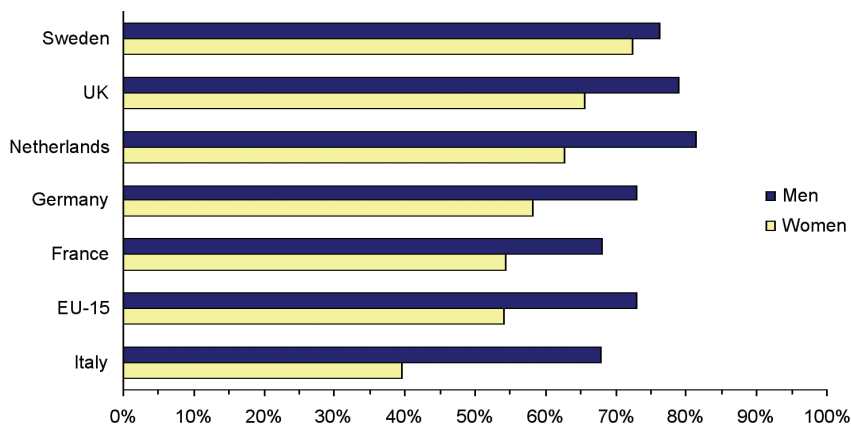
Skills and inactivity are related: in the population aged 15-64, the inactivity rate is 47% for the low-skilled, 24.5% for the medium-skilled, but only 13% for the high-skilled.⁸

A fourth disparity concerns gender. Figure 2 compares male and female employment rates in a subset of EU countries. Female employment rates are systematically lower; they are especially low in the big countries.

When these disparities interact, such as for unskilled young workers in high unemployment regions, they result in appallingly high unemployment rates, up to 50% in some cases.

8. We have not seen data on regional unemployment by skill levels, except for Spain; see Mauro, P. and A. Spilimbergo, "How do the skilled and the unskilled respond to regional shocks? The case of Spain", *IMF Staff Papers* 46-1, 1999, which finds that "the highly skilled migrate very promptly in response to a decline in regional labour demand".

Figure 2: Employment rates and gender (15-64)



Policy concerns

Against this background, the EU Council, at its 2000 meeting in Lisbon, set itself the goals (confirmed in March 2005) of:

- increasing employment while modernising social protection systems;
- improving the adaptability of workers and enterprises;
- increasing investment in human capital.

It also adopted quantitative targets for 2005 and 2010 for overall employment, female employment and employment of the elderly (aged 55-64).

The concern with the elderly is linked to the current increase in life expectancy (with correlative ageing and decline of overall activity rates), which creates problems of sustainability for the prevailing Pay-As-You-Go pension systems.

At the beginning of the intermediate year 2005, the targets were not attained: the total employment rate stood at 63.3% instead of the targeted 67%; the rate for women stood at 55.7% instead of 57%.

Other grounds for concern are linked to:

- enlargement; unemployment rates in the ten New Member Countries average some 13%, and wage levels there are well below EU15 levels; this raises the concern of labour migration, apt to exacerbate unemployment in the EU15;
- globalisation and the competition from low-income countries, which adversely affects unskilled workers in the EU;
- high-tech; the Lisbon objectives aim to make the European Union “the most

dynamic and competitive knowledge-based economy in the world”, through education, research and development; the implications of that goal for employment (especially of the low-skilled) are as yet unclear.

Policy assignment

In March 2005, the Lisbon Strategy was given a new start, “focusing the European Union’s efforts on two principal tasks – delivering stronger, lasting growth and more and better jobs”.

One important element of the Lisbon re-launch is the overhaul of its governance structure “to define more clearly the respective responsibilities at the national and the Community level.”⁹ A “Community Lisbon Programme” has been defined for matters decided at the EU level; national policies have to be defined through country-specific National Reform Programmes. Although these adjustments stress the need for more elaborated and coordinated actions, the basic principle remains that “the design and implementation of macroeconomic, microeconomic and employment policies lies primarily with member states”.¹⁰

Regarding macroeconomic policies, the “Stability and Growth Pact” (SGP) initiated in Maastricht delegates responsibility for monetary policy to the European Central Bank (ECB), with the primary objective of maintaining price stability. Curiously, exchange rate policy remains the domain of the Council. Fiscal policy is the domain of the member states, subject to the guideline of containing overall deficits in each country within 3% of GDP.

The higher exchange rate of the past years is bound to have affected unfavourably the demand for labour in the EMU¹¹. When the dollar/euro ratio fell below unity, some discontent was voiced. A relatively high parity goes hand-in-hand with relatively high nominal interest rates, and with lower inflation.

The national economies in Europe are quite open, with trade flows averaging some 33% of GDP. But two thirds of these flows are between member countries. Trade of the EU with the rest of the world is still limited to 11% of GDP. Accordingly, responsibility for fiscal stance (though not for specific fiscal policies) should rest with the Union, not with the member nations. Although obvious, this point is not recognised in the Maastricht-Lisbon assignment of responsibilities.

The distinction between “fiscal stance” and “fiscal policies” is important. Clearly, the choice of specific fiscal instruments like tax rates or public expenditures should remain in the hands of member states. But the overall fiscal stance of the Union

9. EU Commission (2005) “Common Actions for Growth and Employment: The Community Lisbon Programme” COM(2005)330 final.

10. Basically, the EU operates under the principle of “subsidiarity”: responsibility lies by default with the member states, EU-level responsibilities are limited to a an agreed set of specific tasks.

11. It is worth noting that three of the six countries with low unemployment do not belong to EMU (Denmark, Sweden and the UK).

is in itself an important policy instrument, calling for conscious policy choices, instead of being left to evolve from national policies constrained by the SGP. How to implement a Union-level fiscal stance, without curtailing unduly the country-level options for specific policies, is a genuine challenge that has not so far been faced squarely in the EU. Clearly, it deserves attention.

Another major defect of the SGP is that no distinction is drawn between the current and the capital accounts. A balanced current account allows for a maximum of 3% net investment, no matter how productive. Conversely, the sale of assets (e.g. privatisation of public enterprises) is treated on par with current receipts.

The SGP has not been implemented as initially planned and has been subject to much debate. But the current structure still entails disregarding fiscal stance as a stabilisation instrument at the EU level – whether it might operate through current deficits or through public investment. And yet, the possibility of an aggregate demand deficiency cannot be excluded, as hinted above and elaborated further below.

Is there a way out?

Over the years, our understanding of the situation has evolved. To some extent, this has reflected changing approaches to macroeconomic theory as well as changing political outlooks. But we have also learned from experience, notably because policy adjustments and the evolution of unemployment have not been uniform across countries and over time.

According to Stephen Nickell (2003), labour market reforms might explain some 50% of the unemployment differentials between the Big Four and the Group of six.

Nickell's work is part of a larger stream of research aimed at explaining the intertemporal and/or the intercountry differences in employment performances in Europe over the last half century¹². It fits the trend of a more and more privileged attention to the supply side – labour market reforms - as opposed to the demand side – macroeconomic stabilisation policies - in the search for policies able to meet the unemployment challenge.

Olivier Blanchard (1999, p. 57) concludes a stimulating lecture on “European Unemployment: the role of shocks and institutions” with a message of optimism. He writes: “If demand policies are used to maintain growth and help reduce actual unemployment in line with equilibrium unemployment, more progress on labour market reforms is possible. In short, a more favourable environment and better labour market institutions may at last lead to the reduction of European

12. See e.g. Blanchard (1999), Heckman (2003) or Ljunqvist (2003) for expository reports.

unemployment.” In a sense, this conclusion brings us back to the theme of “two-handed” policies that was stressed in earlier discussions of employment-promoting policies.¹³

Blanchard’s conclusion recognises that both feasibility and effectiveness of labour market reforms are enhanced by growth, thereby providing an additional argument for demand-stimulating policies in Europe.¹⁴

Can this argument suffice to convince the EU Council that it should accept a responsibility for demand stimulation and stabilisation? Probably not by itself. But perhaps a convincing case can be made for a specific EU-level program of temporary (and timely!) demand stimulation through public investment. Public investment has been neglected for many years in Europe, and the SGP is not helping in that respect. There is thus ample scope for socially productive investments. The Community Lisbon Program recognises the need to develop the infrastructure in relatively backward regions, and reiterates a commitment to develop Trans-European communication Networks (TEN).

Most of the arguments levied against fiscal stimulation fail to apply to investment. Further, there is scope for targeting the investments on projects with intensive use of low-skilled labour, thereby directly addressing the core unemployment problem while avoiding inflationary pressures. One area where extensive needs could be met in this way is the provision of low-cost housing; see Drèze *et al.* (2000).

Linking an investment program to labour market reforms (in the Big Four!) is germane to “increasing employment while modernising the social protection systems”, the first of the three Lisbon objectives listed above.

Retroacts

The same spirit was present in the position paper of 13 Belgian and French economists convened twelve years ago by Jacques Drèze and Edmond Malinvaud (1994), “Growth and Employment: the Scope for a European Initiative”. The economic conditions at the time were generally comparable to the present ones – except for the creation of the EMU in the meantime. That document called for an ambitious program of public investment in low-cost housing, urban transportation and international communication; coupled with supply-side measures aimed at more efficient labour markets. The more distinctive element of the latter measures called for reduced employer contributions to social security at the low end of the wage scale. Further recommendations included wage moderation and “streamlining” the social protection system. Clearly, the spirit of the Blanchard conclusion was there.

13. See e.g. Blanchard *et al.* (1985).

14. Also, the message of optimism may be related to Blanchard’s discussion of persistence. Two key considerations there come from the duration dependence and marginalisation associated with high unemployment. Employment growth is also likely to reverse these effects through persistence.

The same spirit was also present in “An Economists’ Manifesto on Unemployment in the European Union” issued by Franco Modigliani *et al.* (1998). That document also insists on two-handed policies, stressing how the two sides reinforce each other. It also turns to investment for demand stimulation. And it goes into a detailed review of supply-side measures “to introduce a substantially higher degree of flexibility in the European labour and product markets”.

These two pleas for two-handed policies were completely ignored, in what regards the demand side. Wage subsidies (reductions of employers’ SS contributions) at and near minimum wages, where they will not be passed through in higher wages, received some attention, especially in France and Belgium; they remain a natural suggestion, also with the European dimension discussed in Drèze (2002).

*Academics and politics*¹⁵

Taking stock so far, *an ambitious European investment program coupled with further labour market reforms*, especially in the Big Four, seems to define a promising way out of Europe’s persistent unemployment. So, *why is that program absent from today’s policy agenda*, or even debate?

My answer is blunt: because it lacks widespread advocacy and support from European academic economists! How could we expect policy makers to adopt a sophisticated policy mix, if it is not advocated widely by the economics profession? The question is all the more pregnant today, because the balanced policy mix at stake deviates substantially from the liberal creed of non-intervention that has gained many adepts!

My answer is blunt, because it takes for granted that *academic* economists have a role to play in the design of economic policies. Is that obvious?

For those among you who heard or read the address on a similar occasion by our distinguished friend or colleague Hugo Sonnenschein,¹⁶ the answer to my question is perhaps ambiguous. Let me quote briefly.

Sonnenschein’s ideal is universities primarily concerned with “the discovery, preservation and transmission of knowledge ... (within) a perspective that celebrates the development and testing of ideas”. This ideal is contrasted with “a fearful image of universities ... seeking solutions to the most pressing and complex social problems and promoting national economic growth.” The pressure on universities to deliver such solutions “could in the long run prove very injurious”. Hence, academic economists need not be concerned with policy design.

Yet, there is also room for a positive answer, if I may quote the conclusion: “Universities should be places where we can think hard and independently about

15. Also, the message of optimism may be related to Blanchard’s discussion of persistence. Two key considerations there come from the duration dependence and marginalisation associated with high unemployment. Employment growth is also likely to reverse these effects through persistence.

16. The material to follow was not discussed with Henri Sneessens; “we” becomes “I”.

the ideas that are ... most likely to change the way that we view ... our opportunities for the future.” With this conclusion, I agree wholeheartedly.¹⁷ Its link to the ideal, and its break from the fearful image, come from the reference to “ideas” that “change the way we view our future”.

Admittedly, the position papers that I have referred to above do not fully qualify on these grounds. So I turn briefly to work that, in my opinion, falls squarely within Sonnenschein’s conclusion, while being relevant to our policy challenge. This paves the way towards my own conclusion.

Macroeconomic implications of General Equilibrium Theory

At the risk of oversimplification, I regard the theoretical discipline of economics as consisting today of two distinct branches, namely microeconomics and macroeconomics. The former is concerned with abstract models of economic interactions among individual agents solving fully specified decision problems, i.e. problems defined by the objectives and opportunities of the agents. The latter is concerned with abstract models of how such macroeconomic variables as national income, inflation or unemployment interact and evolve. Born with Keynes in the thirties, macroeconomics (including monetary theory) has developed into a complex discipline, with an empirical (econometric) as well as a theoretical side. It faces the twin challenges of linking the empirics and the theory, and of relating the macroeconomic variables to the underlying decision problems of individual agents. The latter challenge is often described as the search for “microeconomic foundations of macroeconomics”.

I have myself defended on several occasions the alternative methodological stance of searching for “macroeconomic implications of microeconomics”. Let me explain concisely. Most work in microeconomics addresses specific problems (say, equilibrium on a single market, or decision criteria for business firms under uncertainty); but there is one theoretical development that concerns the whole economy, as described by the set of all individual agents (households and firms) interacting through markets. The resulting structure is known as “General Equilibrium Theory” (GET). It was initially developed by Léon Walras, then formalised after World War II by Kenneth Arrow, Gérard Debreu, Lionel McKenzie and their followers. In a fundamental sense, GET is concerned with the functioning of the whole economy, exactly like macroeconomics. But it is regarded today as the culmination of microeconomics, and is not integrated with macroeconomics. The lack of integration is vividly illustrated by the fact that such concepts as national income, inflation or unemployment are not operationally defined in GET.

To date, GET has been mainly concerned with such properties as existence, efficiency, stability a.s.o. of economy-wide equilibria on competitive markets; namely, on markets where individual agents trade commodities (goods or services)

17. “The purpose of the university”, Bellaterra, April 1994, *passim*.

in pursuit of their own objectives, taking market prices as given. In relation to economic problems of the real world, the competitive markets paradigm is inadequate on (at least) four grounds:

- 1) many markets of relevance to agents do not exist; this remark applies with force to future contingencies: a worker concerned about the possibility of dismissal cannot contract for another job in July 2010 contingently on restructuring of her present employer...
- 2) market transactions consist in exchange of commodities against money, not in barter; “fiat money” (as we call it) is a manmade contraption, with a logic of its own, different from that governing the use of goods and services; financial assets play an important role in macroeconomic evolutions;
- 3) markets do not universally clear by prices alone; rationing constraints are common - especially for the supply of labour, leading to involuntary unemployment at downwards rigid wages; or for commodities produced under set-up costs;
- 4) many agents exercise market power: they do not take prices as given, but set prices in their own interest; that is, competition is “imperfect”.

These four departures from the competitive-markets paradigm mean that Walrasian General Equilibrium Theory is of limited relevance to many pressing economic problems, foremost among which I would rate Europe’s persistent unemployment!

Today, inflation, unemployment and the trade-off between these two evils belong to the province of macroeconomics. My own methodological creed is different. The basic methodology of GET calls for analysing the interactions among a set of individual agents, each solving a well-defined problem under feasibility constraints emerging endogenously from the said interactions. That basic methodology can be applied to more complex situations than specified by the competitive, complete markets Walrasian model. Indeed, there exists ample work extending that model to incomplete markets, to fiat money, to price-wage rigidities or to imperfect competition. Today’s challenge is to integrate these four extensions, so as to take into account their joint implications, which are more complex than the sum of their separate implications.

To illustrate briefly, the absence of contingent markets for future jobs explains why downward wage rigidities are desirable: they offer a second-best alternative superior (on grounds of risk-sharing efficiency) to sequential competitive clearing of labour markets; cf Drèze and Gollier (1993). So, market incompleteness is at the root of price-wage rigidities leading to involuntary unemployment. This in turn justifies macroeconomic policies –monetary or fiscal- apt to stimulate both labour market flexibility at non-competitive wages, and aggregate labour demand.

One crucial joint implication of incomplete markets and non-competitive

market clearing is the emergence of multiple equilibria; for instance, there may arise a trade-off between inflation and unemployment, a locus of equilibria labelled “Phillips curve” by economists. Under incomplete markets, expectations of agents replace market signals in guiding individual decisions. A major advance in our understanding of expectation formation has come with the concept of “rational expectations”, namely expectations congruent with economic theory as defined by John Muth fifty years ago and used routinely by macrotheorists today. But defining rational expectations under a theory that allows for multiple equilibria is a challenge that has not been met squarely to date. It belongs on the agenda of developing the macroeconomic implications of microeconomics, within a General Equilibrium framework extending to incomplete and non-competitive markets. Part of the difficulty arises from the observation that monetary developments (inflation) and rationing (unemployment) do not reflect objective primitives of an economy; they reflect human policy decisions (monetary policies, wage settlements), not objective primitives. And these are the key variables about which “rational” expectations should be formed, in a context of multiple equilibria!

So, is there a way out?

I have just alluded to some key concerns of my own research over the past years (since my official retirement in 1989), a brief preliminary account of which can be found in Drèze (2001, 2005).¹⁸ That research fully confirms the need of two-sided policies to cope with Europe’s persistent unemployment. It also supports the merits of the more specific proposals outlined above, namely reduced labour costs for unskilled work combined with public investments. In commenting on that episode, I wrote (in 1999): “With six years of hindsight, I marvel at how closely a collective policy proposal could anticipate the conclusions of theoretical research still in the making. I now realise that the research outlined here was not only motivated by policy issues. It was also inspired by the policy discussions. This illustrates the benefits from interaction between policy concerns and theoretical research. I regard that interaction as crucial for the long-term program of integrating micro- and macroeconomics into a unified discipline.”

I have no doubt that our friend Hugo regards such integration as belonging on the agenda of his ideal university. Let me express the hope that your distinguished university may collaborate with mine, and with other leading universities in Europe, towards implementing that theoretical program! We may then be able to train a new generation of economists who will agree on the policies best apt to eradicate Europe’s persistent unemployment. A way out will then be in sight. There is a long way to go, so let us not waste a single minute!

18. I have myself defined universities as institutions that incarnate the “consciousness of evolution” in our societies; see “L’université dans la société contemporaine” in *La Revue Nouvelle*, Bruxelles, June 1965.

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CURRICULUM VITAE
DE
JACQUES H. DRÈZE

CURRICULUM VITAE

Jacques H. Drèze

Born at Verviers, Belgium, August 5, 1929.

Belgian

Married, 5 sons

Degrees

Licencié en Sciences Economiques, 1951

Licencié en Sciences Commerciales et Financières, 1951

Université de Liège (Summa cum Laude)

Ph.D. in Economics, 1958, Columbia University

CRB Graduate Fellow, 1952-1954 Columbia University, Harvard University, University of Chicago and University of Michigan

Teaching

Visiting Assistant Professor, Carnegie Institute of Technology
(Graduate School of Industrial Administration), 1957-1958

Chargé de cours, Université Catholique de Louvain
(Institut des Sciences Economiques), 1958-1962

Visiting Associate Professor, Northwestern University
(Department of Economics), 1962

Professeur ordinaire, Université Catholique de Louvain,
(Institut des Sciences Economiques), 1962-1989

Ford Foundation Professor, 1963-1964, Professor, 1964-1968 University of Chicago,
Graduate School of Business and Department of Economics Titulaire de la Chaire
Francqui Belge, Université Libre de Bruxelles 1970-1971 Titulaire de la Chaire Francqui
Belge, Katholieke Universiteit Leuven, 1982-1983 Andrew D. White Professor at
Large, Cornell University, 1971-1977 Member of the Program Committee, European
Doctoral Program in Quantitative Economics, 1978-1989

Research

Research Fellow, Carnegie Institute of Technology, September-December 1954

Chargé de recherche, Centre d'Etudes de Recherche Opérationnelle, Université
Libre de Bruxelles, 1958-1960

Research Associate

Purdue University (Kranert School of Management), June-August 1957

Northwestern University (The Technological Institute), June-August 1962

Northwestern University (Econometrics Research Center), June-August 1963

University of Wisconsin (Mathematics Research Center and Social Systems Research
Institute), June-August 1964

Massachusetts Institute of Technology (Sloan School of Management), July-August
1966

Stanford University (Institute for Mathematical Studies in the Social Sciences), July 1979

Research Director, 1966-1971, President, 1971-1983, Center for Operations Research and Econometrics (CORE)

Member, 1984-1985, Chairman, 1986-1987, CEPS Macroeconomic Policy Group
Coordinator, European Unemployment Programme, 1985-1988

Activity within International Associations

Institute of Management Science

Président du Comité organisateur, Congrès Mondial de Bruxelles, 1961

Director, International Center for Management Science, Louvain, 1966-1971
Econometric Society

Associate Editor, 1963-1964, Co-Editor, 1964-1969 of *Econometrica*

President of the Programme Committee, European Congress of Zürich, 1964

Fellow of the Econometric Society, 1964

Vice-President, 1969, President of the Econometric Society, 1970

International Economic Association

Co-Director, Workshop in Economic Theory, Bergen, 1971

President, 1996-1999, Past President, 1999-2002

European Economic Association

President, 1985-1986

Honours

“Prix des Alumni”, Fondation Universitaire, Brussels, 1964

Honorary Member of the American Economic Association, 1976

Foreign Honorary Member, American Academy of Arts and Sciences, 1978

Foreign Member of the Royal Netherlands Academy of Arts and Sciences, 1980

Member, Academia Europaea, 1989

Corresponding Fellow of the British Academy, 1990

Foreign Associate, National Academy of Sciences, Washington, 1993

Prix Emile De Laveleye, Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique, 1993

Honorary Member of Asociacion Argentina di Economica Politica, 1998

Lauréat du Prix “Istituto Nazionale delle Assicurazioni” attribué par l’Academia dei Lincei, Rome, 1999.

Honorary Member of Latin American and Caribbean Economic Association, 1999

Membre correspondant, Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique, 2000; hors cadre, 2004.

Doctor Honoris Causa

University of Essex, July 1980

Université de Paris I-Sorbonne, November 1980

Université de Montréal, May 1982
Université de Liège, March 1983
Universiteit Antwerpen, May 1985
Norges Handelshoyskole, Bergen, September 1986
Universita degli Studi di Bologna, February 1988
Université de Genève, June 1988
Universität Basel, September 1988
University of Chicago, June 1991
Université d'Aix-Marseille, November 1992
Université de Cergy-Pontoise, November 1999
Libera Università di Bolzano - Freie Universität Bolzen, September 2000
European University Institute, Florence, September 2002
Universidade Católica Portuguesa, January 2003
Universiteit Maastricht, January 2005

Doctoral Dissertations supervised by Jacques H. Drèze

- 1968 Tulkens, H., "Programming Analysis of the Postal Service: A Study in Public Enterprise Economics", Louvain (Co-promoteur avec L.H. Dupriez). Professeur émérite, UCL.
- 1968 Gabszewicz, Jean, "Coeurs et allocations concurrentielles dans des économies d'échanges avec un continu de biens". Professeur émérite, UCL.
- 1969 Juckler, F., "Modèles de gestion des stocks et coûts marginaux". Professeur émérite, UCL.
- 1971 Morales, J., "Bayesian Full Information Structural Analysis with an Application to the Study of the Belgian Beef Market", Springer-Verlag, Berlin. Professeur, Université Catholique de Bolivie, et Gouverneur, Banco Central de Bolivia.
- 1971 Bronsard, C., "Dualité microéconomique et théorie du Second Best". Professeur, Université de Montréal.
- 1972 Marchand, M., "The Pricing of Random Demands with Application to Telephone Electricity and Priority Pricing". Professeur émérite, UCL. (†)
- 1973 Mouchart, M., "Analyse bayésienne du modèle de régression avec résidus non-standard". Professeur émérite, UCL.
- 1973 Richard, J.-F., "Posterior and Predictive Densities for Simultaneous Equations Models with Application to the Belgian Beef Market", Springer-Verlag, Berlin. Professeur, University of Pittsburgh, USA.
- 1975 Palm, F., "Times Series Analysis and Simultaneous Equation Models with Macroeconomic Applications" (Co-promoteur avec A. Zellner). Professeur, Universiteit Maastricht, NL.
- 1976 Deschamps, Ph., "Second-Best Pricing with Variable Product Quality: A Quantitative Decision Rule and Existence Proof". Professeur, Université de Fribourg, Suisse.
- 1979 De Carvalho, F.A., "Planning Public Consumption under Restricted Information,

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- A Process-Oriented Contribution”, Louvain-la-Neuve. Professeur de Marketing, Rio de Janeiro.
- 1980 Dehez, P., “Essai sur le rôle des balances monétaires dans la dynamique des équilibres à court terme avec rationnement” (Co-promoteur avec W. Hildenbrand). Professeur, UCL.
- 1980 Sneessens, H., “Theory and Estimation of Macroeconomic Rationing Models”, Springer-Verlag, Berlin. Professeur, UCL Professeur, Facultés Universitaires de Lille, France.
- 1982 Dermine, J., “The Pricing Policies Intermediaries”, Springer-Verlag, Berlin. Professeur, INSEAD, Fontainebleau, France .
- 1984 Lambert, J. P., “Disequilibrium Macroeconomics Models: Theory and Estimation of Rationing Models Using Business Survey Data”, Cambridge University Press, Cambridge. Professeur, Recteur, Facultés Universitaires St-Louis, Bruxelles.
- 1985 Orsi, R., “La théorie économique et estimation d’un modèle macroéconomique avec rationnement et avec double marché du travail” (Co-promoteur avec M. Mouchart). Professeur, Université de Modena, Italy.
- 1986 Andersen, T., “Allocation under Differential Information: Flexible and Fixed Price”. Professeur, Université de Aarhus, Denmark.
- 1987 Modesto, L., “Price, Production and Inventories Adjustments: Microfoundations and Aggregate Behaviour: An Empirical Study for the Belgian Manufacturing Sector”. Professeur, Université Catholique du Portugal, Lisbonne, Portugal.
- 1988 Gollier, C., “Intergenerational Risk-Sharing and Unemployment”. Professeur, Université des Sciences Sociales, Toulouse, France. 1989 Mulkay, B., “Investment and Business Surveys: A Study on a Panel Data of French Firms”, Professeur, Université Guyane-Martinique-Guadeloupe, France; détaché à l’INSEE, Toulouse.

PUBLICATIONS

Books

- [1] *Allocation under Uncertainty: Equilibrium and Optimality* (Ed.), Macmillan, London, 1974.
 Proceedings from a *Workshop in Economic Theory* organised for the International Economic Association by J. Mirrlees, E. Malinvaud and myself. Covers the part of the program for which I was responsible, with an introduction plus two papers by myself and 12 papers by participants.
- [2] *Essays on Economic Decisions under Uncertainty*, Cambridge University Press, Cambridge, 1987.
 Twenty reprinted papers, organised under 7 headings: individual decision theory, markets and prices, consumer decisions, producer decisions, theory of the firm,

human capital and labour contracts, public decisions.

- [3] *Labour Management, Contracts and Capital Markets, A General Equilibrium Approach*, Oxford, 1989.

An extended version of the 1983 Yrjö Jahnsson Lectures, dealing with the pure theory of labour-managed, then stock-market economies; stock-market economics with labour contracts; labour management versus labour contracts under incomplete capital markets; and some macroeconomic aspects.

- [4] *Europe's Unemployment Problem* (Ed.), MIT Press, Cambridge (Mass.), 1990. (With C. Bean, J.P. Lambert, F. Mehta and H. Sneessens, Eds)

Papers prepared under the *European Unemployment Program*, a 10-country research initiative supervised by Richard Layard and myself in 1986-88. The country papers adopted a common econometric framework inspired by my work on Belgium with Henri Sneesens (see article [71] below). Includes a 65-page synthesis by Charles Bean and myself.

- [5] *Underemployment Equilibria: Essays in Theory, Econometrics and Policy*, Cambridge University Press, Cambridge, 1991.

Eighteen reprinted papers, organised under 8 headings: overview, equilibria with price rigidities, efficiency of constrained equilibria, public goods and the public sector, price adjustments, wage policies, econometrics, and policy.

- [6] *Money and Uncertainty: Inflation, Interest, Indexation*, Edizioni Dell' Elefante, Roma, 1992.

An extended version of the 1992 Paolo Baffi Lecture at Banca d'Italia, dealing successively with a positive theory of positive inflation, with interest rates policies and with wage indexation.

- [7] *Pour l'emploi, la croissance et l'Europe*, De Boeck Université, 1995.

Ten papers (some initially written in French, some translated from English) dealing successively with growth and employment, technical progress and low-skilled employment, European macroeconomic policies, work sharing, Europe's capital city and a status for regions within a Europe of nations. Most papers are based on lectures addressed to non-specialist audiences.

- [8] *Advances in Macroeconomics* (Ed.), Palgrave, London, 2001.

Proceedings from the 1999 Twelfth World Congress of the International Economic Association, containing the lectures on macroeconomics for which I was responsible. Includes my presidential address and a critical synthesis of the lectures.

ARTICLES

- [1] “Monnaie scripturale et monnaie fiduciaire”, *Revue de la Banque*, Bruxelles, 20, 9-10, 621-654, 1956.
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- [2] “Un plan d’échantillonnage pour la Belgique”, *Bulletin de la Société Belge de Statistique*, 58-70, 1959.
A different approach to cluster sampling for consumer surveys.
- [3] “Les probabilités ‘subjectives’ ont-elles une signification ‘objective’?”, *Economie Appliquée*, Paris, 1959.
Non technical presentation of [8].
- [4] “Le paradoxe de l’information”, *Economie Appliquée*, Paris, 13, 55-70, 1960.
Information can have negative value, in multi-persons situations. Anticipates the often-cited paper by Hirshleifer in AER 1971.
- [5] “Analyse économétrique des émissions privées en Belgique”, *Bulletin de l’Institut de Recherches Economiques et Sociales*, Louvain, 447-486, 1960.
A classroom illustration of the identification problem.
- [6] “La gestion des stocks” in *Problèmes et Techniques de la Recherche Opérationnelle*, OBAP, Bruxelles, 21-30, 1960.
Expository.
- [7] “Quelques réflexions sereines sur l’adaptation de l’industrie belge au Marché Commun”, *Comptes Rendus de la Société d’Economie Politique de Belgique*, Bruxelles, 275, 3-37, 1960; translated as “The Standard Goods Hypothesis” in *The European Internal Market: Trade and Competition*, Eds. A. Jacquemin and A. Sapir, 13-32, Oxford University Press, Oxford, 1989.
Product differentiation and economies of scale as a new source of comparative advantage - a pillar of the extensive theory of “intra-industry trade”, and of some more recent developments following the paper by Krugman in AER 1970.
- [8] “Les fondements logiques de l’utilité cardinale et de la probabilité subjective”, in *La Decision*, Colloques Internationaux du CNRS, Paris, 73-97, 1961.
Extension of individual decision theory to moral hazard and state-dependent preferences, based on my unpublished Ph.D. Thesis, revised and more systematically presented in [76].
- [9] “Les exportations intra-CEE en 1958 et la position belge”, *Recherches Economiques de Louvain*, 27, 717-738, 1961.
Econometric support of [7].
- [10] “Analyse de la balance commerciale de l’UEBL en 1958”, *Recherches Economiques de Louvain*, 27, 739-766, 1961. (With J. Van Der Rest and J. Van Overbeke.)
Econometric support of [7].
- [11] “Sur quelques aspects de la précision d’estimations basées sur les enquêtes de budgets ménagers”, *Etudes Statistiques et Econométriques*, Bruxelles, 3, 5-16, 1962.

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- Statistical inference when data are aggregated (initially, correction of an error in a paper published in the same journal).
- [12] “L’utilitésociale d’une vie humaine”, *Revue Française de Recherche Opérationnelle*, 23, 93118, 1962.
Introduces the “willingness to pay” approach to the demand for safety.
- [13] “Some Postwar Contributions of French Economists to Theory and Public Policy”, *American Economic Review*, 54, 2, 1-64, 1964.
An extensive review (with some extensions) of the work of the French marginalist school (Allais, Boiteux, Massé, ...), with additional sections on intertemporal allocation (Allais, Malinvaud, ...) and French planning.
- [14] “Decision and Horizon Rules for Stochastic Planning Problems: A Linear Example”, *Econometrica*, 34, 2, 307-330, 1966. (With A. Charnes and M. Miller.)
A minor contribution to operations research: truncation rules for stochastic dynamic programming, illustrated by a simple example (the warehousing model).
- [15] “Epargne et consommation en avenir aléatoire”, *Cahiers du Séminaire d’Econométrie*, 9, 7-33, 1966. (With F. Modigliani.)
Preview of [28], with an integrated treatment of occupational choice and portfolio choice.
- [16] “Specification and Estimation of Cobb-Douglas Production Function Models”, *Econometrica*, 34, 784-795, 1966. (With A. Zellner and J. Kmenta.)
Application of Bayesian methods to production function estimation, with attention to the assumptions about producer information.
- [17] “Demand Fluctuations, Capacity Utilisation and Prices”, *Operations Research Verfahren*, 3, 119-141, 1967. (With J. Jaskold Gabszewicz.)
Preview of [42] for the special case of cubic cost functions.
- [18] “Entscheidungstheorie und ‘Bayessche Statistik’ ”, *Jahrbüchern für Nationalökonomie und Statistik*, 182, 3, 216-223, 1968.
Expository (translation of a lecture for the award ceremony of the “Prix des Alumni”).
- [19] “The American Presence in Europe”, *Selected Papers*, Graduate School of Business, The University of Chicago, 31, 1-16, 1969.
Discursive (prepared for a meeting launching the Chicago-London-Louvain MBA Exchange Program).
- [20] “On Cores and Competitive Equilibria” in *La Décision*, Colloques Internationaux du CNRS, Paris, 171, 91-114, 1969. (With S. Gepts and J. Jaskold Gabszewicz.)
Derives implications for finite economies of the equivalence theorems (between the core and competitive allocations) proved for infinite numbers of agents by Debreu-Scarf and Aumann. Inspired [24, 26, 43].
- [21] “Market Allocation under Uncertainty”, *European Economic Review*, 2, 2, 133-165, 1971.
Interpretation of the Arrow-Debreu contingent markets model. First statement

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- and demonstration of the martingale property of prices for contingent claims.
- [22] “A Note on Interdependence as a Specification Error”, *Econometrica*, 39, 6, 1009-1013, 1971. (With R.H. Strotz.)
A recursive model with lagged endogenous variables converges continuously to an interdependent model when the lag goes to zero, contrary to an earlier claim of Strotz.
- [23] “A Tâtonnement Process for Public Goods”, *Review of Economic Studies*, 38, 2, 133-150, 1971. (With D. de la Vallée Poussin.)
Introduces the well-known MDP process for public goods, demonstrates convergence and pro-vides an early analysis of incentive compatibility.
- [24] “Syndicates of Traders in an Exchange Economy” in *Differential Games and Related Topics*, North-Holland, 1971. (With J. Jaskold Gabszewicz.)
Defines two concepts of stability for collusive agreements among identical agents; the first is incompatible with a non-competitive core allocation, the second not.
- [25] “Discount Rates for Public Investments in Closed and Open Economies”, *Economica*, 38, 152, 395-412, 1971; reprinted in *Cost-Benefit Analysis*, A.C. Harberger and G.P. Jenkins Eds, Edward, 2002, and in *Discounting and Environmental Policy*, J.Scheraga, Ed., Ashgate, 2002 (With A. Sandmo.)
Second-best analysis of the choice of a discount rate for public investment (previously confined to partial analysis). The social discount rate should be a weighted average of rates of return on specific investments, with weights reflecting marginal shares.
- [26] “Cores and Prices in an Exchange Economy with an Atomless Sector”, *Econometrica* 40, 6, 1090-1108, 1972. (With J. Jaskold Gabszewicz, D. Schmeidler and K. Vind.)
Foran exchange economy with both an atomless sector and atoms, the paper gives alternative sufficient conditions for a core allocation to have a competitive restriction to the atomless sector.
- [27] “Econometrics and Decision Theory”, *Econometrica*, 40, 1, 1-17, 1972.
Presidential address to the Econometric Society; summarises my own work on Bayesian Econometrics (see also [61]) and expounds complementarities between economic theory, decision theory, econometrics and mathematical programming.
- [28] “Consumption Decisions under Uncertainty”, *Journal of Economic Theory*, 5, 3, 308-335, 1972. (With F. Modigliani.)
Started in 1954 (!), was still on the frontier in 1972 (!) and is still somewhat of a classic. Basic clarifications (time preferences versus risk preferences, temporal versus timeless uncertainty) and compendium of results on savings and portfolio choices under uncertainty.
- [29] “A Note on the Transactions Demand for Money”, *European Economic Review*, 3, 83-90, 1972. (With A. Sandmo, under the Pseudonym of Dr. Saschba Telphlluch.)

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- A would-be witty, early explanation of why the income-elasticity of the transaction demand for money may be unity rather than one-half, because transaction costs and income are both proportional to hourly earnings.
- [30] “A Tâtonnement Process for Investment under Uncertainty in Private Ownership Economies” in *Mathematical Methods in Investment and Finance*, Eds. G.P. Szegö and K. Shell, North-Holland, 1972.
An alternative presentation, using differentiability, of basic results more fully expounded in [33].
- [31] “Discount Rates and Public Investment: A Post-Scriptum”, *Economica*, 41, 161, 52-61, 1974.
Extension of [25] from two periods to many periods.
- [32] “Axiomatic Theories of Choice, Cardinal Utility and Subjective Probability: A Review” in *Allocation under Uncertainty: Equilibrium and Optimality*, Macmillan, chap. 1, 1974.
A popular (in both meanings) exposition of individual decision theory in the Savage tradition, its limitations and its relevance for positive and normative economics.
- [33] “Investment under Private Ownership: Optimality, Equilibrium and Stability” in *Allocation under Uncertainty: Equilibrium and Optimality*, Macmillan, chap. 9, 1974.
Develops the “incomplete markets” model of general equilibrium under uncertainty, with a single commodity per state, as an extension of the special model (fixed coefficients) introduced in the seminal paper by Diamond in AER 1967; proves basic results (most notably nonconvexity, but also existence of stockholders equilibria, their inefficiency, and stability of stock market valuation of investments.)
- [34] “Bayesian Theory of Identification in Simultaneous Equations Models” in *Studies in Bayesian Econometrics and Statistics*, Eds. S.E. Fienberg and A. Zellner, North-Holland, 1974.
Based on an unpublished manuscript of 1962. Introduces the Bayesian concept of identification and applies it to SEM; together with [39, 41, 44], forms the core of the material summarised in [61] and outlined in [27].
- [35] “A Finite Algorithm for Homogeneous Portfolio Programming” in *Mathematical Programs for Activity Analysis*, Ed. P. Van Moeseke, North-Holland, 181-211, 1974 (With P. Van Moeseke.)
A mathematical programming paper, combining elements of homogeneous and quadratic programming to solve a problem posed by Van Moeseke.
- [36] “Existence of an Exchange Equilibrium under Price rigidities”, *International Economic Review*, 16, 2, 301-320, 1975.
Introduces an equilibrium concept for market economies operating under price rigidities (the so-called Drèze equilibrium) and a now widely used method of proving existence. Covers both real and nominal rigidities defined

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- by upper and/or lower bounds on individual prices. The paper was motivated by the second-best merits of price rigidities when markets are incomplete - see [101].
- [37] “Cooperative Games with Coalition Structures”, *International Journal of Game Theory*, 3, 4, 217-237, 1975. (With R. Aumann.)
A foray into game theory, collecting properties of an array of cooperative solution concepts, when a coalition structure is given *a priori*.
- [38] “Pricing, Spending and Gambling Rules for Non-Profit Organisations” in *Public and Urban Economics*, Essays in Honor of William S. Vickrey, Ed. R.E. Grieson, Lexington Books, 59-89, 1976 (With M. Marchand.)
Second-best theory applied to non-profit organisations, including Ramsey-Boiteux pricing, criteria for capital accumulation or consumption and guidelines for risk-taking.
- [39] “Bayesian Limited Information Analysis of the Simultaneous Equations Model”, *Econometrica* 44, 5, 1045-1075, 1976.
The fundamental paper on Bayesian methods for SEM, including the use of ratio-form poly-t densities.
- [40] “Some Theory of Labour Management and Participation”, *Econometrica*, 44, 6, 1125-1139, 1976.
Walras lecture to the 1975 World Congress of the Econometric Society. Preview of book [3]. Includes the first general equilibrium analysis of labour-management. Under labour mobility across firms, labour management equilibria replicate competitive equilibria.
- [41] “Bayesian Full Information Analysis of Simultaneous Equations”, *Journal of the American Statistical Association* 71, 345, 919-923, 1976. (With J.-A. Morales.)
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- [42] “Demand Fluctuations, Capacity Utilisation and Costs”, *American Economic Review*, 66, 5, 731-742, 1976. (With E. Sheshinski.)
The basic model of industry equilibrium under uncertain demand. Free entry guided by expected profits leads to minimum expected costs and expected prices. Greater uncertainty calls for higher capacity.
- [43] “Disadvantageous Monopolies and Disadvantageous Endowment”, *Journal of Economic Theory*, 16, 1, 116-121, 1977 (With J. Jaskold Gabszewicz and A. Postlewaite.)
In economies with one atom and an atomless sector, the atom may loose if departing from the competitive allocation, or if accepting an endowment gift from the atomless sector.
- [44] “Bayesian Regression Analysis Using Poly-t Densities”, *Journal of Econometrics*, 6, 329-354, 1977; and in *New Developments in the Applications of Bayesian Methods*, Eds A. Aykaç and C. Brumat, North-Holland, 153-184, 1977.

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- [45] “Stability Theorems with Economic Applications”, *Econometrica*, 45, 2, 273-294, 1977. (With P. Champsaur and C. Henry.)
An outgrowth of [23]; presents a general approach to stability analysis for processes (in both continuous and discrete time) with discontinuities.
- [46] “Choice of Product Quality: Equilibrium and Efficiency”, *Econometrica*, 46, 3, 493-513, 1978. (With K.P. Hagen.)
An outgrowth of [33], establishes the formal analogy between investment decisions under incomplete markets and choices of products; covers also the characteristics approach of Lancaster. Compares competitive and monopolistic equilibria, both of which are generically suboptimal.
- [47] “On the Stability of Dynamic Processes in Economic Theory”, *Econometrica*, 47, 3, 733-737, 1979. (With C. d’Aspremont.)
Applies the notion of stability in the sense of Lyapunov to the processes considered in [45].
- [48] “Human Capital and Risk-Bearing”, *The Geneva Papers on Risk and Insurance*, 12, 5-22, 1979; version française: “Capital humain et répartition des risques”, *The Geneva Papers on Risk and Insurance*, 12, 3-20, 1979.
The second annual Lecture of the Geneva Association; a broad non-technical discussion of labour contracts and of the risk-sharing foundations of social security.
- [49] “Salaires, emploi et durée du travail”, *Recherches Economiques de Louvain*, 45, 1, 17-34, 109-132, 1979.
Building on results in [56], provides an early analysis of work sharing with an influential application to Belgium.
- [50] “La prise de décision en situation d’incertitude”, *L’Actualité Economique*, 2, 129-150, 1979.
An expository paper, linking labour contracts and financial markets -a theme taken up in [91]; translation not proofread and full of inaccuracies.
- [51] “Demand Estimation, Risk Aversion and Sticky Prices”, *Economics Letters*, 4, 1, 1-6, 1979.
A risk-averse firm with imperfect information about demand elasticity behaves as if it faced a kinky demand curve; this leads to (real) price stickiness.
- [52] “Public Goods with Exclusion”, *Journal of Public Economics*, 13, 1, 5-24, 1980.
Applies the theory of equilibrium with quantity rationing to public goods with exclusion, thereby providing the first theoretical analysis of such goods in a general-equilibrium framework.
- [53] “Hedonic Coalitions: Optimality and Stability”, *Econometrica*, 48, 4, 987-1003, 1980. (With J. Greenberg.)
Considers cooperative games with a coalition structure [37] where players’ utilities depend upon the imputation and upon the coalition to which they belong. Pareto efficiency may then require transfers among coalitions. Stability of the

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- coalition structure may require default penalties.
- [54] “Réduction progressive des heures et partage du travail” in *Les Conditions de l’Initiative Economique*, 4ème Congrès des Economistes de Langue Française, 3ème Commission, 2-4; 57-83, 1980.
An outgrowth of [56] and [49], providing the theoretical framework for interpreting the results of a survey conducted among Belgian firms.
- [55] “Optimality Properties of Rationing Schemes”, *Journal of Economic Theory*, 23, 2, 131-149, 1980 (With H. Müller).
Second-best welfare analysis of alternative rationing schemes, establishing the superiority of coupons equilibria and discussing their information content for desirable price changes. Also led to [75].
- [56] “The Trade-off Between Real Wages and Employment in an Open Economy (Belgium)”, *European Economic Review*, 15, 1-40, 1981. (With F. Modigliani.)
An analysis of the short-and long-run wage elasticity of employment, with an original Bayesianclassical econometric evaluation for Belgium, the introduction of the union-wage model and a discussion of work sharing.
- [57] “Inferring Risk Tolerance from Deductibles in Insurance Contracts”, *The Geneva Papers on Risk and Insurance*, 20, 48-52, 1981.
A new approach to measuring risk-aversion, with striking conclusions about plausible numerical ranges.
- [58] “La Belgique dans la crise et la contrainte de balance des paiements”, *Recherches Economiques de Louvain*, 47, 55-78, 1981. (With J. Dermine.)
Advocates devaluation of the Belgian frank (prevailing opinion notwithstanding) and provides a surprisingly accurate forecast of the effects of the 1982 devaluation.
- [59] “State-Dependent Utility, the Demand for Insurance and the Value of Safety” in *The Value of Life and Safety*, Proceedings of a Conference held by The Geneva Association, Ed. M.W. Jones-Lee, North-Holland, 41-65, 1982; and in *Premium Calculation in Insurance*, Eds. F. de Vylder et al., D. Reidel, 77-107, 1984. (With P. Dehez)
An outgrowth of [12], adds the public goods dimension to the demand for safety based on a value of life reflecting willingness-to-pay and relates the analysis to insurance behavior; rests on the theory of decision with state-dependent utility in [8, 76].
- [60] “Decision Criteria for Business Firms” in *Current Developments in the Interface: Economics, Econometrics, Mathematics*, Eds. M. Hazewinkel and A.H.G. Rinnooy Kan, D. Reidel, North-Holland, 27-51, 1982.
An outgrowth of [33], but also of [21]; a synthesis of approaches and results on risk attitudes of firms in stock-market economies; develops the CAPM as a special case of complete markets.
- [61] “Bayesian Analysis of Simultaneous Equations Models” in *Handbook of Econometrics*, Eds.

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- Z. Griliches and M. Intriligator, North-Holland, Chap. 9, 517-598, 1983.
(With J.-F. Richard.)
A survey paper providing an integrated exposition of the approach and of results in [34, 39, 41, 44], with some extensions.
- [62] “On Industry Equilibrium under Uncertainty”, *Journal of Economic Theory*, 33, 1, 88-97, 1984. (With E. Sheshinski.)
A follow-up to [42] investigating dynamics.
- [63] “On Supply-Constrained Equilibria”, *Journal of Economic Theory*, 33, 1, 172-182, 1984. (With P. Dehez.)
An outgrowth of [36] and intervening work by Vander Laan; extends [36] to production and proves existence of supply-constrained equilibria (i.e., equilibria with constraints on supply but not on demand), at arbitrary relative prices under a flexible price level. Used constructively in [113].
- [64] “Second-Best Analysis with Markets in Disequilibrium: Public Sector Pricing in a Keynesian Regime”, *European Economic Review*, 29, 263-301, 1985; also reprinted in *The Performance in Public Enterprise: Concepts and Measurement*, Eds. M. Marchand, P. Pestieau and H. Tulkens, North-Holland, 45-79, 1984.
Extends the Ramsey-Boiteux second-best analysis to the case of price rigidities and quantity rationing in the private sector; includes my first encounter of the Keynesian multiplier in a general equilibrium model.
- [65] “Rigidité des prix, rationnement de l’offre et inflation”, *Cahiers du Séminaire d’Econométrie*, 26, 13-23, 1984. (With P. Dehez.)
A companion paper to [63], less technical and application oriented.
- [66] “Labour Management and General Equilibrium” in *Advances in the Economic Analysis of Participatory and Labour-Managed Firms*, JAI Press Inc., 1, 3-20, 1985; version française: “Autogestion et équilibre général”, *Revue Européenne des Sciences Sociales*, 22, 66, 208-229, 1984.
A non-technical version of [40].
- [67] “(Uncertainty and) The Firm in General Equilibrium Theory”, *Economic Journal*, 95 (Supplement: Conference Papers), 1-20, 1985.
An outgrowth of [33], extending the decision structure of firms from stockholders’ meetings to boards of directors; production plans are chosen by endogenously appointed managersdirectors, under unanimity rule with side-payments and subject to majority approval by stockholders; probably the most realistic decision structure in the general equilibrium literature; preview of chapter 2 in book [3], which supplies the proofs.
- [68] “Econometrics in the General Economics Curriculum: Teachers in a Quandary?”, *Tijdschrift voor Economie en Management*, 30, 3, 97-102, 1985.
A discussion of classical versus Bayesian econometrics from the view point of pedagogical efficiency, offered to my colleague and friend John van Waterschoot on his retirement.

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- [69] “Employment and Growth in Europe: A Two-Handed Approach”, *CEPS Paper* 21, Bruxelles 1985. (With O. Blanchard, R. Dornbusch, H. Giersch, R. Layard and M. Monti.)
A report of the CEPS-DGII Macroeconomic Policy Group, largely written by Blanchard and Dornbusch, stressing the complementarity of supply and demand.
- [70] “Moral Expectation with Moral Hazard” in *Contributions to Mathematical Economics* in Honor of Gérard Debreu, Eds. W. Hildenbrand and A. Mas-Colell, North-Holland, 187-204, 1986; version française: “Espérance morale avec risque moral”, *L’Actualité Economique*.
Excerpts from [76], limited to moral hazard (with state-independent preferences).
- [71] “A Discussion of Belgian Unemployment, Combining Traditional Concepts and Disequilibrium Econometrics”, *Economica*, 53, 89-119, 1986. (With H. Sneessens.)
A macro-econometric model allowing for an evolving mixture of Keynesian, classical and inflationary regimes; formed the basis for the 10-countries study presented in book [4].
- [72] “What, If Anything, Have We Learned from the Rise of Unemployment in Belgium, 1974-1983?”, *Cahiers Economiques de Bruxelles*, 110/111, 21-26, 1986. (With H. Sneessens.)
A companion presentation of [71].
- [73] “Work Sharing: Some Theory and Recent European Experience”, *Economic Policy*, 1, 3, 561-619, 1986.
A comprehensive paper discussing the theoretical rationale for work sharing, then documenting and analysing the historical experience of several European countries, in the late seventies early eighties.
- [74] “Reducing Unemployment in Europe: The Role of Capital Formation”, *CEPS Paper* 28, Bruxelles, 1986. (With F. Modigliani, M. Monti, H. Giersch and R. Layard.)
Another CEPS-DGII report, largely written by Modigliani and Monti, focussed on investment.
- [75] “Values of Markets with Satiation or Fixed Prices”, *Econometrica*, 54, 6, 1271-1318, 1987. (With R. Aumann.)
A game theoretic analysis of economies with fixed prices, showing the convergence of the Shapley value to uniform coupons equilibria; an alternative interpretation covers economies with satiated preferences; an outgrowth of [36, 55], with a technical *tour de force* by Aumann.
- [76] “Decision Theory with Moral Hazard and State-Dependent Preferences”, chap. 2 in *Essays in Economic Decisions under Uncertainty*, Cambridge University Press, Cambridge, 1987.
Chapter 2 of book [2]. Anticipated by [8], but technically more advanced; provides a general treatment of decision theory with moral hazard and state-dependent preferences, as an extension of subjectively expected utility theory,

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- with extensive comments. Expected utility maximisation applies to the choices of probabilities (strategies) in games of “strength and skill”. Subjective probabilities and state-dependent utilities are fully identified if and only if all events have strategy-dependent probabilities. The only treatment to date based on preferences revealed by choices.
- [77] “Underemployment Equilibria: From Theory to Econometrics and Policy”, *European Economic Review*, 31, 9-34, 1987.
 Presidential Address to the European Economic Association. A public lecture and introductory chapter to book [5]; concise presentation of the theory of equilibria under price rigidities and quantity rationing in [36, 63], possibly due to increasing returns [82]; the econometrics of quantity rationing models ([71] and book [4]); and two-handed employment policies [79].
- [78] “Eurosclerosis: A Disease of the Economies, or the Economists?”, Comment on “Slow Growth in Europe: Conceptual Issues” in *Barriers to European Growth*, Eds. R.Z. Lawrence and C.L. Schultze, Washington D.C, pp. 79-83, 1987.
 A non-technical appraisal of barriers to recovery in Europe.
- [79] “The Two-Handed Growth Strategy for Europe: Autonomy through Flexible Cooperation”, *CEPS Paper* 34, Bruxelles, 1987; and *Recherches Economiques de Louvain*, 54, 1, 5-52, 1988. (With C. Wyplosz, C. Bean, F. Giavazzi and H. Giersch.)
 Another CEPS-DGII report, largely written with Charles Wyplosz; extends the two-handed approach of supply and demand policies to cooperative implementation through differentiated national policies.
- [80] “Macroeconomic Policy in Europe: Autonomy through Cooperation”, *European Economic Review*, 32, 353-362, 1988; version française: “Une stratégie ambidextre pour l’Europe: l’autonomie par la coopération” in *Gestion de l’Economie et de l’Entreprise. L’Approche Quantitative*, 1326, CORE, De Boeck Université, Bruxelles, 1988. (With C. Wyplosz.)
 A concise synthesis of [79].
- [81] “L’arbitrage entre équité et efficacité en matière d’emploi et de salaires”, 8ème Congrès des Economistes de Langue française, Commission 6, Chap IV, 121-146, 1988; reprinted in *Recherches économiques de Louvain*, 55, 1, 1-31 1989; also reprinted in Book [5].
 Some degree of wage-rigidities is second-best efficient when the deadweight loss of taxes used to finance income transfers is high, or when incomplete markets prevent risk sharing; see also [101].
- [82] “Competitive Equilibria with Quantity-taking Producers and Increasing Returns to Scale”, *Journal of Mathematical Economics*, 17, 209-230, 1988. (With P. Dehez.)
 Extension of the Arrow-Debreu model to non-convex technologies; competitive behaviour is captured by pricing rules specifying, for given quantities, minimal prices compatible with voluntary trading; existence is proved.

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- [83] “Distributive Production Sets and Equilibria with Increasing Returns”, *Journal of Mathematical Economics*, 17, 231-248, 1988. (With P. Dehez.)
A complement and companion to [82]. Under non-decreasing returns overall (output distributive production sets), the existence result of [82] holds under the natural assumptions of voluntary trading and zero profit (free entry).
- [84] “L’autogestion et la théorie économique: efficacité, financement et emploi”, in G. Quaden, Ed., *L’Entreprise Coopérative, Tradition et Renouveau*, *Annales de la Chaire de Coopération*, pp. 55-70, Labor, Bruxelles, 1988; translated as “Self-Management and Economic Theory: Efficiency, Funding, and Employment”, Chap. 15 in *Market Socialism*, P.K. and J. Roemer, Eds., Oxford University Press, 1993.
An outgrowth of [40] and book [3], with attention to funding and employment policies of labour-managed firms.
- [85] “Generic Inefficiency of Stock-Market Equilibrium when Markets are Incomplete”, *Journal of Mathematical Economics*, 1990. (With J. Geanakoplos, M. Magill and M. Quinzii.)
An outgrowth of [33]; in stock-market economies with production decisions geared to shareholder preferences, equilibria are generically inefficient; changes of production plans, inducing changes in state-contingent relative prices, can be Pareto improving.
- [86] “Méthodes quantitatives et décisions économiques”, Chap. 5 in *Modélisation et Décisions Economiques*, Proceedings of the Symposium for the XXth Anniversary of CORE, Ed. H. Tulkens, Louvain-la-Neuve, 1990.
An expository survey of research at CORE, bringing out the complementarities of economic theory, operations research, econometrics and game theory.
- [87] “A Proposal for ‘COperative Relief of Debt in Africa’ (CORDA)”, in *Evolution of the International and Regional Monetary System*, Eds. A. Lamfalussy, A. Steinherr and D. Weiserbs, Macmillan, London, 1989; version française: “Coopération pour le règlement des dettes des pays d’Afrique, des Caraïbes et du Pacifique (CORDA), *Cahiers de la Faculté des Sciences Economiques et Sociales*, Namur, 1988. (With A. Kervyn de Lettenhove, J.-P. Platteau and P. Reding.)
Written at the request of “Justice and Peace”, a proposal for market purchase of African debt by the European Union, redefinition of debt obligations on the basis of ability to pay and use of proceeds to fund a Marshall plan for Africa; received some official attention, but was perhaps too ambitious for practical implementation.
- [88] “Maurice Allais and the French Marginalist School”, *Scandinavian Journal of Economics*, 1989.
Presentation of Maurice Allais for the Nobel Award; draws heavily on [13].
- [89] “Schuld en Cooperatie in de Mondiale Economie”, in *Leuvense Economische Standpunten*, 49, 1989.

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- A lecture based on [87].
- [90] “Tales of Testing Bayesians” in *Contributions to Econometric Theory*, Eds. R.A.L. Carter, J. Dutta and A. Ullah, 1990. (With M. Mouchart.)
Classical test statistics can be relevant to Bayesian decisions; three examples.
- [91] “The Role of Securities and Labour Contracts in the Optimal Allocation of Risk-Bearing”, in H. Loubergé, Ed., *Risk, Information and Insurance. Essays in the Memory of Kark H. Borch*, Kluwer Academic Publishers, Boston., 1989; reprinted as chap. 11 in *Underemployment Equilibria: Essays in theory, Econometrics and Policy*, 1991.
An extension of the CAPM to labour contracts; efficiency calls for wages indexed in part on the CPI and in part on nominal national income, with individually chosen weights.
- [92] “Stability of a Keynesian Adjustment Process” in W. Barnett, B. Cornet, C. d’Aspremont, J. Jaskold Gabszewicz and A. Mas-Colell, Eds, *Equilibrium Theory and Applications*, Chap. 9, Cambridge University Press, Cambridge, 1991.
A natural adjustment process for a constant returns economy, with quantities moving faster than prices and downward price rigidity, leading in a bounded number of steps to a supplyconstrained equilibrium, as defined in [63].Includes both a tâtonnement and a non-tâtonnement specification.
- [93] “European Unemployment: Lessons from a Multi-Country Econometric Study”, *Scandinavian Journal of Economics*, 92 (2), 135-165, 1990; translated as “Le chômage en Europe: conclusions d’une analyse économétrique multinationale”, *L’actualité Économique, Revue d’Analyse Économique*, 68, 359-389, 1992. (With C. Bean.)
Preview of [94].
- [94] “Europe’s Unemployment Problem: Introduction and Synthesis”, in J.H. Drèze, C. Bean, J.P. Lambert, F. Mehta and H. Sneessens, Eds, *Europe’s Unemployment Problem*, Chap. 1, MIT Press, Cambridge (Mass), 1990. (With C. Bean.)
Introductory chapter to book [4] which collects ten econometric studies of employment in OECD countries, based on the disequilibrium approach of [71]; presentation of the model and summary of results, with discussion.
- [95] “Can Varying Social Insurance Contributions Improve Labour Market Efficiency?” in *Alternative to Capitalism: The Economics of Partnership*, A.B. Atkinson, Ed., Macmillan, London, 1993.
An outgrowth of [81] and [91]; implementing efficient labour contracts through cyclical variations of social security contributions; includes a discussion of social security contributions collected as a profit share *à la* Weitzman.
- [96] “From the ‘Value of Life’ to the Economics and Ethics of Population: The Path is Purely Methodological”, *Recherches Économiques de Louvain*, 58, 2, 1992.
Outgrowth of [12] and [59]; the value of life concept relevant to the problems of safety is not relevant to problems of population, but the methodologies

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- suitable for the two problems are related.
- [97] “La capitale de l’Europe, le marché et les pouvoirs publics locaux: murmures d’analyse et d’anticipation économiques”, *Comptes Rendus de la Société Royale d’Economie Politique de Belgique*, 470, 3-5, 1992.
A public lecture on urban economics, with emphasis on taxation of land rents to finance infrastructure and on improving mobility through road pricing.
- [98] “Temps de travail: Leçons européennes et perspectives belges”, *La Revue Nouvelle*, 46-59, 1993.
A non-technical update and summary of the empirical findings of [73].
- [99] “Europe’s Unemployment Problem”, Fundacion BBV Lecture, Madrid, 1993; reprinted in *European Review*, 2, (1), 73-82, 1994.
A non-technical version of [94].
- [100] “1 Market+1 (tight) Money = 2 Rules of Fiscal Discipline: Europe’s Fiscal Stance Deserves Another Look”, in *European Economic Integration: A Challenge in a Changing World*, M. Dewatripont and V. Ginsburgh, Eds., North-Holland, Amsterdam, 1994.
An early warning against the deflationary impact of simultaneous budget consolidations; advocacy of cooperative fiscal policies in Europe; includes a survey of econometric simulations and an appendix on fiscal policies under quantity rationing and uncertainty. Debt-financed fiscal stimulation is appropriate provided demand outgrows supply over the period between the stimulation and the retirement of the debt.
- [101] “Risk Sharing on the Labour Market and Second-Best Wage Rigidities”, *European Economic Review* 37, 1457-1482, 1993. (With C. Gollier.)
A systematic presentation of the case for limiting wage flexibility, both upwards and downwards, and for some degree of wage discrimination by hiring date, to achieve more efficient risk sharing when markets are incomplete.
- [102] “Regions of Europe: A Feasible Status, to Be Discussed”, *Economic Policy*, 266-307, 1993.
Regions could belong directly to the Europe of nations, without being part of a national state; merits and implementation are discussed; a principle of “distributive neutrality” leads to define transfers for seceding regions that prevent endless secessions.
- [103] “Growth and Employment: The Scope for a European Initiative”, *European Economy, Reports and Studies*, 1, 75-106, 1994; traduction française: “Croissance et emploi: l’ambition d’une initiative européenne”, *Revue de l’OFCE*, 49, 247-288, 1994. (With Edmond Malinvaud, Paul De Grauwe, Louis Gevers, Alexander Italianer, Olivier Lefebvre, Maurice Marchand, Henri Sneesens, Alfred Steinherr, Paul Champsaur, Jean-Michel Charpin, Jean-Paul Fitoussi, Guy Laroque.)
A collective position paper, advocating a cooperative growth initiative in Europe combining lower interest rates, elimination of labour taxes on low wages,

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- public investment programs, a leaner but strengthened welfare state, wage moderation, taxation of interests and of CO₂ at European level. Still pertinent...
- [104] “Growth and Employment: The Scope of a European Initiative”, *European Economic Review* 38, 1994. (With Edmond Malinvaud.)
A concise synthesis of [103].
- [105] “Technical Development, Competition from Low-Wage Economies and Low-Skilled Unemployment”, *Swedish Economic Policy Review*, 185-214, 1994; translated in French as “Progrès technique, mondialisation et travail peu qualifié”, chap. 3 in *Scenario pour l’emploi*, M. Didier, Ed., Economica, 1995. (With Henri Sneessens.)
The market position of unskilled workers has deteriorated due to biased technical progress, competition from low wage economies and relative stagnation of manufacturing employment. Lower labour costs, at unchanged incomes, are needed and discussed.
- [106] “Forty Years of Public Economics: A Personal Perspective”, *The Journal of Economic Perspectives*, 9, 2, 111-130, 1994.
An overview of developments in public economics; outgrowth of editing a volume of selected papers by William Vickrey, and based on a lecture presenting that volume at an AEA meeting.
- [107] “Report of the IEA Committee on a New School of Economics and Economic Development (SEED) in the Third World”, *Journal of Public Economics*, 55, 1-18, 1994. (With K. Arrow, A.B. Atkinson, K. Basu, S. Honkapohja, A. Krueger, J.-A. Morales, and N. Stern.)
A committee report prepared for the International Economic Association, assessing the desirability and feasibility of organising a new School of Economics as a centre of excellence in a third-world country.
- [108] “L’emploi en Europe”, *Recherches Economiques de Louvain*, 2, 159-180, 1995.
A public lecture and opening chapter of book [7], summarising my views on the causes of and remedies for European unemployment as of late 1994. Presented in Toulouse as the second annual lecture of IDEI.
- [109] “Small Banks are Beautiful. Can it last?”, in *Economic Development and financial Intermediation: Small Firms, Local Banks and Cooperative Credit*, IRCEL, Roma, 1996.
Drawing on fifty years of loose association with a small country bank, reviews the merits of smallness, the evidence on scale economies and the survival conditions for small banks.
- [110] “Sur la spécificité économique des soins de santé”, *Economie et Prévision*, Economie et Prévision, 129-130, 1997.
An invited editorial, presenting in non-technical terms the case for a health system combining universal compulsory insurance, deductibles and partial coinsurance, and supply controls, to overcome the problems

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- of adverse selection, moral hazard and agency/asymmetric information in health care.
- [111] “Research and Development in Public Economics; William Vickrey’s Inventive Quest of Efficiency”, *Scandinavian Journal of Economics*, 99, 2, 179-198, 1997.
Presentation of William Vickrey’s work for the Nobel Committee.
- [112] “Temps choisi et partage du travail”, *Société royale d’Economie politique de Belgique*, 497, 4-37, 1997; reprinted in *The Right to Work: Towards Full Employment*, M. Archer and E. Malinvaud, Eds, Pontifical Academy of Social Sciences, Vatican City 1998, 307-338.
Updating of [73] and advocacy of a 4-days week.
- [113] “Walras-Keynes Equilibria, Coordination and Macroeconomics”, *European Economic Review*, 41, 1737-62, 1997.
In decentralised market economies, supply-constrained equilibria (as already studied in [63]) may persist as coordination failures, sustained but not caused by price rigidities. This feature may be arbitrarily severe, even at prices compatible with competitive equilibrium. The model includes both goods with flexible prices and goods with fixed prices.
- [114] “Investment Stimulation, with the Example of Housing”, *BEI Papers*, Volume 3, 1, 99-114, 1998; revised, *Recherches économiques de Louvain*, 66, 1, 33-53, 2000. (With A. Durré and H. Sneessens.)
Following upon a suggestion formulated in [103], and drawing upon data for Wallonia, this paper spells out a program of investment in public housing seen as an instrument of demand stimulation in Europe.
- [115] “William S. Vickrey 1914-1996: A Biographical Memoir”, 75, *National Academy of Sciences*, (1998)
Memoir outlining Vickrey’s career, contributions and research style.
- [116] “Money and Monetary Policy in General Equilibrium”, Chap. 4 in A.P. Kirman and L.A. Gérard-Varet, Eds, *Economics Beyond the Millennium*, Clarendon, Oxford, 1998 (With H. Polemarchakis.)
Introducing money and transactions demand equilibrium models; existence, indeterminacy and suboptimality results; the basis for part 2 of book [6].
- [117] “Public Economics, Public Projects and their Funding”, *Asian Development Review*, 15, 1-17, 1999.
A lecture on the contribution of public economics to the analysis of public projects and of their funding. The case for funding public projects on world capital markets is presented and applied to the denomination of LDC debt.
- [118] “On the Dynamics of Supply-Constrained Equilibria” in P.J.J. Herings, G. van der Laan and A.J.J. Talman, Eds, *Theory of Markets*, North-Holland, Amsterdam, 1999.
A dynamic extension of [113]. The paper defines a simple tâtonnement process of adjustments in prices and quantities, where excess demand results

in nominal price increases and excess supply results in quantity rationing of supply at unchanged prices. Under standard assumptions, the process converges to a supply-constrained equilibrium. Includes a stylised application to monetary (interest rate) policy.

- [119] “Jobs and Economic Security in the 21st Century” in H. Löffler and E.W. Streissler, Eds, *Sozialpolitik und Ökologieprobleme der Zukunft*, 65-96, Österreichische Akademie der Wissenschaften, Wien, 1999.

At the invitation of the Austrian Academy of Sciences on the occasion of its 150th anniversary, this lecture takes a long run *ex ante* view of social protection and concludes on the role of (macro-) securities for promoting mutual insurance among the nations of Europe.

- [120] “The formulation of Uncertainty: Prices and States”, Chap. 3 in G. Chichilnisky, Ed., *Markets, Information, and Uncertainty, Essays in Economic Theory in Honor of K.J. Arrow*, Cambridge University Press Cambridge, UK, 1999.

Returning to the theme of [21], a comparison of temporary equilibrium and incomplete markets models and a discussion of whether prices should appear in the definition of states. Concludes instead that prices will in general affect preference orderings.

- [121] “Moral Hazard and Conditional Preferences”, *Journal of Mathematical Economics*, 31, 159-181, 1999. (With A. Rustichini.)

Conditional expected Utility theories, based on hypothetical preferences among outcomes conditional on states, are reconciled with decision theory under moral hazard [76]. The hypothetical preferences conditional on arbitrary events are well defined when and only when either states are fully exogenous or states are under full control of the agent.

- [122] “Intertemporal General Equilibrium and Monetary Policy”, Chap.2 in A. Leijonhufvud, Ed., *Monetary Theory as a Basis for Monetary Policy*, Macmillan, London, 1999. (With H.M. Polemarchakis.)

The monetary general equilibrium model of [116] is used to define a comprehensive monetary policy, to show that control of nominal interest rates controls at equilibrium expected inflation but not inflation variability, and to illustrate sources of monetary non-neutrality.

- [123] “State-Dependent Utility and Decision Theory”, in S. Barbera, P. Hammond and C. Seidl, Eds, *Handbook of Utility Theory*, 2, Kluwer, Dordrecht 2004. (With A. Rustichini)

Survey article on a topic of long-standing interest [8, 70] as well as current research [121].

- [124] “On the Macroeconomics of Uncertainty and Incomplete Markets”, *Recherches Economiques de Louvain*, 67 (1), 5-30, 2001; reprinted as Chap. 3 in J.H. Drèze, Ed., *Advances in Macroeconomics*, Macmillan, London, 1999; French

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- translation: “Sur la macroéconomie de l’incertitude et des marchés incomplets”, *Revue de l’OFCE*, 72, 7-37, 2000.
- Presidential Address to the International Economic Association, summarising semi-formally recent theoretical work on wage rigidities [101], coordination failures [113] and the dynamics of supply-constrained equilibria [118]. Policy conclusions relate to investment ([103], [114]), cyclically adjusted labour taxes [95] and macrosecurities [119].
- [125] “Economic and Social Security in the Twenty-First Century, With attention to Europe”, *Scandinavian Journal of Economics*, 102(3), 327-348, 2000.
- A partly heuristic attempt at exploring long-run policies aimed at a second-best compromise between *ex ante* risk-sharing efficiency and *ex post* productive efficiency. Wage subsidies for low-skilled workers financed by taxes on high wages are advocated, together with improved risk sharing between capital and labour, between generations and between the countries belonging to EMU.
- [126] Globalizzazione e titolarizzazione dell’assunzione di rischio, *Assicurazioni*, LXV, 3, 251-64, 2000.
- A non-technical lecture at the Award ceremony of the INA Prize. Discusses the case for globalisation of risk sharing, the limits of existing arrangements, including securitisation, the scope for private-public partnerships, and potential improvements to international or intergenerational risk sharing.
- [127] “Monetary Equilibria”, Chap. 5 in G. Debreu, W. Neufeind and W. Trockel, Eds, *Economics Essays A Festschrift for Werner Hildenbrand*, Springer Berlin Heidelberg New York, 2001 (With H.M. Polemarchakis.)
- A definitive presentation of the model used in [116] and [122], with minimal assumptions and with proofs.
- [128] “Advances and Challenges in Macroeconomics” in J.H Drèze (Ed.), *Advances in Macroeconomics*, Palgrave, London, 2001.
- A critical synthesis of 16 lectures on advances in macroeconomics presented to the Twelfth World Congress of the International Economic Association.
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