

Maes, Ivo

Working Paper

The young Lamfalussy: an empirical and policy-oriented growth theorist

NBB Working Paper, No. 163

Provided in Cooperation with:

National Bank of Belgium, Brussels

Suggested Citation: Maes, Ivo (2009) : The young Lamfalussy: an empirical and policy-oriented growth theorist, NBB Working Paper, No. 163, National Bank of Belgium, Brussels

This Version is available at:

<https://hdl.handle.net/10419/144375>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

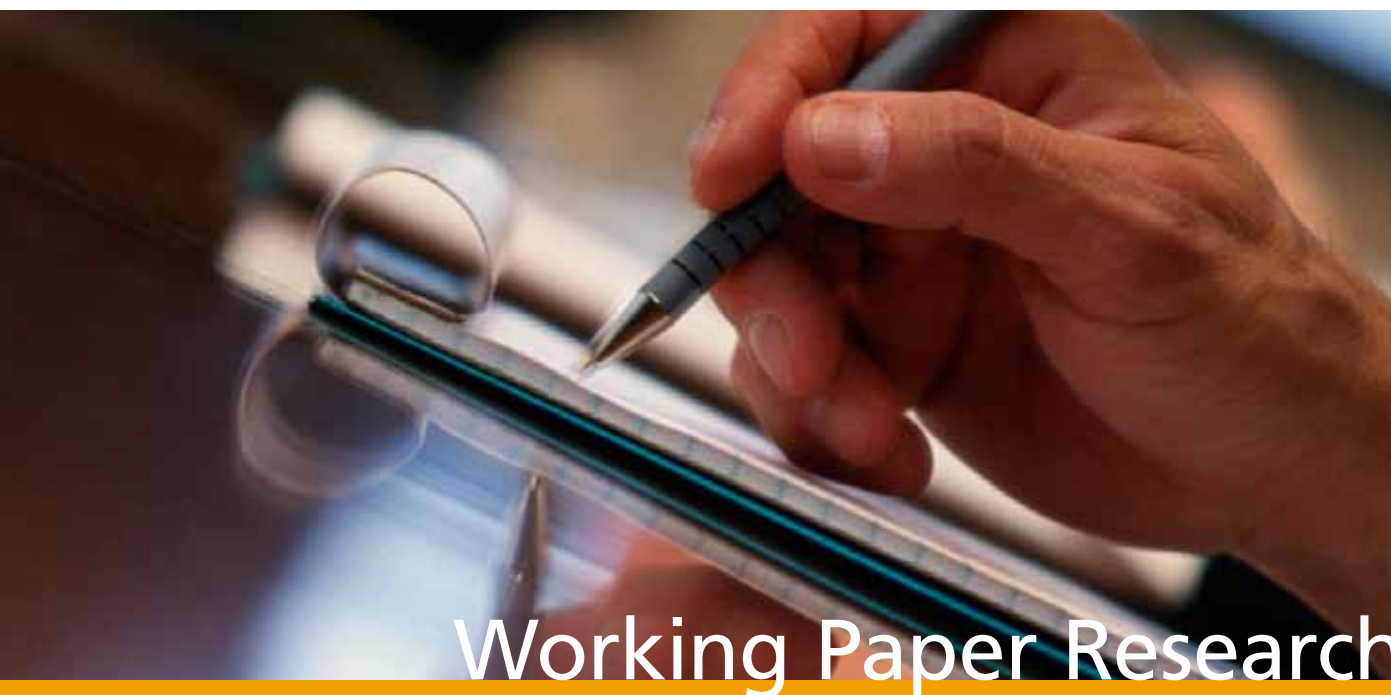
Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

The young Lamfalussy: an empirical and policy-oriented growth theorist



Working Paper Research

by Ivo Maes

April 2009 **No 163**

Editorial Director

Jan Smets, Member of the Board of Directors of the National Bank of Belgium

Statement of purpose:

The purpose of these working papers is to promote the circulation of research results (Research Series) and analytical studies (Documents Series) made within the National Bank of Belgium or presented by external economists in seminars, conferences and conventions organised by the Bank. The aim is therefore to provide a platform for discussion. The opinions expressed are strictly those of the authors and do not necessarily reflect the views of the National Bank of Belgium.

Orders

For orders and information on subscriptions and reductions: National Bank of Belgium,
Documentation - Publications service, boulevard de Berlaimont 14, 1000 Brussels.

Tel +32 2 221 20 33 - Fax +32 2 21 30 42

The Working Papers are available on the website of the Bank: <http://www.nbb.be>.

© National Bank of Belgium, Brussels

All rights reserved.

Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

ISSN: 1375-680X (print)

ISSN: 1784-2476 (online)

Abstract

Alexandre Lamfalussy has been highly influential in the process of European monetary and financial unification. In this paper we will analyse the work of the "Young Lamfalussy" (from the mid 1950s to the mid 1960s). Lamfalussy started his career as an academic, focusing on growth theory and Belgian and European growth patterns in the post-war period. His work is still considered to be influential in the recent literature on Europe's post-war economic growth. It fits nicely into the Keynesian tradition: Lamfalussy's analytical frameworks were often inspired by Keynesian models, in his analysis he emphasised vicious and virtuous circles in the economy and, in his policy conclusions, he was a clear partisan of more planning. However, certain elements, typical also of Lamfalussy's later work, were already present, not least a strong European conviction and an eclectic approach towards economics, blending economic theory and empirical data beautifully to elucidate crucial policy problems.

Key Words: Lamfalussy, European growth patterns, Keynesian economics, Belgium,
macroeconomic policy-making.

JEL Classification: B 22, E 60.

Corresponding author:

Ivo Maes, NBB, Research Department, Robert Triffin Chair, Université catholique de Louvain and ICHEC Brussels Management School.

e-mail: ivo.maes@nbb.be.

The author would like to express his gratitude to all those who contributed to this project, especially J.-P. Abraham, L. Bernard, S. Bertholomé, P. Bini, J. de Groote, M. Dumoulin, K. Dyson, H. Famerée, W. Kaiser, M.-H. Lambert, A. Lamfalussy, P. Mandy, F. Masini, I. Pasotti, V. Périlleux, E. Quevrin, C. Reuss, C. Romagnoli, J. Smets, H. Van der Wee and participants of seminars at the Università Roma Tre and the Université Catholique de Louvain. The usual caveats apply.

The views in this paper are those of the author and do not necessarily reflect those of the National Bank of Belgium or the Eurosystem. All remaining errors are the author's responsibility.

TABLE OF CONTENTS

1. Introduction.....	1
2. Education	2
3. Investment and Growth in Mature Economies. The Case of Belgium	5
3.1. Growth in post-war Belgium	6
3.2. A theory of investment for mature economies	7
3.3. Investment policies in post-war Belgium	8
3.4. Policy conclusions.....	9
4. The United Kingdom and the Six. An Essay on Economic Growth in Western Europe.....	9
4.1. The widening gap.....	10
4.2. The factors limiting the growth process.....	10
4.3. Policy implications.....	12
5. The impact of Lamfalussy's writings	13
5.1. Contemporary reactions	13
5.2. The economic history literature.....	15
6. Conclusion	17
References	18
National Bank of Belgium - Working papers series.....	21

1. INTRODUCTION

Alexandre Lamfalussy has been highly influential in the process of European monetary and financial unification. He is best known as the first president of the European Monetary Institute, the predecessor of the European Central Bank, and as the Chairman of the Committee of Wise Men, which developed a new approach for the regulation of the European securities markets (Maes, 2007a). In this paper, we will analyse the work of the "Young Lamfalussy" (from the mid 1950s to the mid 1960s). Lamfalussy started his career as an academic, focusing on growth and investment theory and Belgium's and Europe's growth patterns in the post-war period.

This Working Paper is part of a more general research programme on Alexandre Lamfalussy. The aim is to analyse also topics like Alexandre Lamfalussy and European monetary integration and financial fragility. This research programme on Alexandre Lamfalussy can be situated in a broader research agenda, comprising European monetary integration, central banking and history of economic thought in Belgium (see, for instance, Maes 2002 and 2007b, and Maes and Quaglia, 2003).

A Short Biography of Alexandre Lamfalussy

Alexandre Lamfalussy was born in Hungary, on 26 April 1929. He emigrated to Belgium in 1949 and studied economics at the Catholic University of Louvain. He went to Nuffield College Oxford from 1953 to 1955, where he obtained a PhD in economics. In 1955, Lamfalussy started working at the Banque de Bruxelles, initially as an economist and thereafter as economic adviser. From 1965 to 1975, he served first as Executive Director of Banque de Bruxelles and later as Chairman of its Executive Board.

Besides his career as a banker (and later as a central banker), Alexandre Lamfalussy also pursued an academic career. His cradle was the Catholic University of Louvain. During the academic year 1961-1962, he was a visiting lecturer at Yale University. In 1963-1965, Lamfalussy was a member of the Segré Committee, appointed by the European Commission, which investigated the integration of the capital markets in the EEC. In the second half of the 1960s, he was a member of the De Voghel Committee, which played an important role in the preparation of the legal framework for the despecialisation of financial institutions in Belgium.

In 1976, Alexandre Lamfalussy joined the Bank for International Settlement (BIS) in Basle as Economic Adviser and Head of the Monetary and Economic Department. Between 1981 and 1985 he served as Assistant General Manager of the BIS before being appointed General Manager in May 1985. He held this post until the end of 1993. During this time, in 1987-1988, he was also a member of the Delors Committee, which played a pivotal role in the EMU process and the preparation of the Maastricht Treaty.

On 1 January 1994, Alexandre Lamfalussy, at that time nearly 65 years old, became the first President of the newly created European Monetary Institute (EMI). Lamfalussy remained at the EMI until 30 June 1997. Under his leadership, the EMI played a decisive role in the preparations for the final stage of economic and monetary union, especially the single monetary policy and the introduction of the euro.

In 2000, Alexandre Lamfalussy was appointed as Chairman of the Committee of Wise Men, which elaborated a new approach for the regulation of European financial markets, the so-called Lamfalussy procedure. This speeded up significantly changes in regulation and increased the transparency of the regulatory process. In December 2008, he became the Chairman of the Belgian High Level Committee on a New Financial Architecture.

From the mid 1950s to the mid 1960s, Alexandre Lamfalussy has written an impressive number of articles and contributions. In this paper, we will focus on Lamfalussy's two books entitled "*Investment and Growth in Mature Economies. The Case of Belgium*" (Lamfalussy, 1961a) and "*The United Kingdom and the Six. An Essay on Economic Growth in Western Europe*" (Lamfalussy, 1963a), as they show most clearly his main ideas and contributions. They can be situated in the general preoccupation in the post-war period with economic growth. As noted by Van der Wee (1986, 35), "the post-war period years were characterized not only by impressive growth but also by the social and political consensus which supported it ... Growth became a *frontier*, even an obsession. Moreover, the aim was not just to grow but to grow *fast*". Also economic ideas were very much growth-orientated, with "Keynesian economics" playing a key role. There was a strong belief that the State had an important role in stimulating and organising the growth process. In several Western European countries, indicative planning became very important. An interesting - and for Belgium, influential - example was France. At the French Planning Office, Keynesian ideas, centred around the national accounts, gained ground rapidly. Moreover, they were combined with the typical French sectoral approach and emphasis on industrial policy.

We will start this essay with a short section on Lamfalussy's education. Thereafter, his two books will be the topic of the two main sections of this paper. Consequently, we will analyse the impact of Lamfalussy's writings, both the contemporary reactions as well as the economic history literature on Europe's post-war growth patterns. In the conclusion, we will also formulate some remarks on continuity and evolution in the economic thought of Lamfalussy.

2. EDUCATION¹

Alexandre Lamfalussy was born on 26 April 1929 in Kapuvar, Hungary (close to the border with Austria). There was a strong engineering tradition in his family, his father being a forestry engineer. At the age of ten, Lamfalussy went to a Benedictine secondary school in Sopron. In 1947, he started economics studies at the Budapest Polytechnic. It gave him a strong background in mathematics, as, in the first year, the economics students did the same mathematics courses as the engineers.

In the summer of 1948, there were major changes in the university system, which, *de facto*, fell in the hands of the communist party. The economics department was taken out of the polytechnic and became the Hungarian University of Economics, based on the Soviet model. Moreover, progressive catholic students, like Lamfalussy, were put under pressure to distance themselves from the church and archbishop Mindszenty. At the same time, along the border with Austria, construction of the Iron Curtain had begun.

In January 1949, Lamfalussy succeeded in leaving Hungary and came to Belgium. He had some contacts there via a Hungarian Benedictine monk, who had earlier migrated to Belgium. In September 1949, he started economics studies at the Catholic University of Louvain, being admitted to the second year.

At that time, Louvain was one of the leading places for economics in the francophone world. The *Institut des sciences économiques*, established in the interwar period, focused on business cycle analysis (Maes and Buyst, 2005). The Institute gained international status in the 1930s, obtaining several grants from the Rockefeller Foundation. Furthermore, the Institute produced very influential business cycle analyses and forecasts, which were sold to private and (semi-) public corporations

¹ This section is to a large extent based on an interview with Alexandre Lamfalussy on 7 August 2008.

and institutions (Maes, Buyst & Bouchet 2000). In Louvain, four professors had an important influence on Lamfalussy, namely Dupriez, Rousseaux, Woitrin and Urbain.

The dominant figure in the 1950s at the Francophone economics department in Louvain was Léon-H. Dupriez. He was generally known as "Le maître de l'École de Louvain" ("the master of the School of Louvain"). He had studied at Harvard in 1918 and 1919. Dupriez had become a leading scholar in business cycle analysis, to be considered in a broad sense: the interaction of growth and different types of cycles in economic life. The focus was very much on the different industrial sectors of the economy, which were then at the centre of the economic growth process². Dupriez (1959, 468), described the industrial revolution as "*une grande aventure prométhéenne de l'humanité*" ("a great *Promethean* adventure for humanity", original italics). Moreover, for Dupriez, money and finance had a central place in economic life (Mandy, 2005). Dupriez's *magnum opus*, "*Des mouvements économiques généraux*" (Dupriez, 1947), became very influential in France and Belgium, and to a lesser degree in Germany. Dupriez was also a pioneer in the introduction of statistical methods of business cycle analysis in Europe. He was very much inspired by foreign research institutions, especially the Harvard Committee on Economic Research. Two elements were typical for Dupriez. Firstly, he based his analysis on extensive empirical investigations (with a lot of attention to descriptive statistical methods, as well as graphs and tables). Dupriez himself described it as "*une théorie conjoncturelle «collant aux faits»*" ("a business cycle theory 'sticking to the facts'") (Dupriez, 1959, VIII). Secondly, he was not in favour of new schools of economic thought, like Keynesian economics. He disliked the use of models, econometrics and national income accounts³. Dupriez's theoretical approach was very much inspired by Walrasian general equilibrium theory. For him, it was crucial that economic theory should go back to individual economic decisions⁴.

Lamfalussy became Dupriez's assistant for business cycle analysis and also took part in the monthly meetings of the Institute with industrialists. This work contributed to two of his early publications, concerning the steel and petroleum refining sectors (Lamfalussy, 1953 and 1954b). However, Lamfalussy took more "Keynesian" positions than Dupriez. While Dupriez disliked formal model-building, for Lamfalussy this was a way to make explicit the implicit model which one was using anyway⁵. Lamfalussy was also strongly in favour of government intervention and planning, including a selective government policy to stimulate investment in new industries, something which Dupriez abhorred (see the discussion in Dupriez, 1961). However, Dupriez's approach of basing economic analysis on empirical material and his contacts with industrialists were important elements in the formation of Lamfalussy. Basing economic analysis on extensive empirical investigations would become a hallmark of Lamfalussy's style of economics.

Lamfalussy was further under the influence of three other professors (Rousseaux, Woitrin and Urbain), who, compared to Dupriez, were more in favour of government intervention in the

² The Flemish economists, under the leadership of Gaston Eyskens, focused much more closely on the structural problems of the Flemish economy, especially high unemployment (see Abraham, 1972). In 1955, they set up their own research centre.

³ Dupriez is reported to have said, "the national income accounts are for Mr. Baudhuin" (Baudhuin was another economics professor in Louvain, who also wrote a weekly column in *La Libre Belgique*).

⁴ At present, Lamfalussy is more positive on Dupriez, acknowledging his great intellectual value. Dupriez understood that cycles should be moderated, but not suppressed, "*Le rêve d'une économie sans conjoncture est aussi «idéaliste» que celui d'une société politique universelle sans heurts et s'inscrit donc dans la lignée des utopies*" ("the dream of an economy with no business cycle is as 'idealistic' as that of a trouble-free universal political society and therefore falls within utopian tradition") (Dupriez, 1959, XIII).

⁵ Later, Lamfalussy (1985, 412) remarked about Schumpeter's growth theory: "When I read his writings, more years ago than I care to remember, I hardly understood what he had in mind and dismissed it anyhow because I could not convert it into equations".

economy. Paul Rousseaux was teaching microeconomics at Louvain⁶. He had studied in Cambridge, where he had adopted imperfect competition theory and Joan Robinson's theory of the firm. Rousseaux had been the supervisor of Lamfalussy's undergraduate dissertation on price flexibility and monopolistic markets⁷. There was also Michel Woitrin, who had spent three years in the United States and came back as a confirmed Keynesian, introducing this school of thought at Louvain. Lamfalussy was also very much under the spell of Yves Urbain, who taught economic history. Urbain knew how to put economics in a historical perspective, with the use of simple graphical presentations, too. He took his students, including Lamfalussy, out to the Borinage, to show what went wrong in the Hainaut. Urbain was very influential among progressive Christian Democrats. From 1958 to 1960, he was an advisor to prime minister Gaston Eyskens for the Borinage⁸. In the 1960s, he held several ministerial offices.

During his student days, Lamfalussy was also active in the "Cercle Européen" and the young Christian Democratic movement, together with several friends, like Emile Koutny, Emile Quevrin, Fernand Herman (later a Member of the European Parliament), Hugues Leclercq and Albert de Schaetzen⁹. For them, European integration was a very profound conviction. They were convinced that it was necessary to abolish the barriers which divided Europe. In their view, European integration should be a stimulus to get the economy out of its stagnation. Moreover, while the economic motive was primordial, there was also a clear cultural dimension, as one felt one belonged to a common cultural heritage¹⁰.

In 1951, Lamfalussy attended the Saarbrücken congress of the young European Christian Democrats, where he got also in touch with Italians and Germans. Kaiser (2007, 302) argues that the Christian Democrats' fundamental aim was to create a "tamed Europeanised nation-state embedded in a supranational constitutional system".

Their ideas were drawn from their shared confessional and regional identities and their opposition to the "centralised liberal and socialist nation-state" (which the Second World War had seriously discredited)¹¹. The European integration project was to a significant extent shaped by Christian Democrats, with politicians such as Schuman, Adenauer and de Gasperi playing a leading role. It constituted market-based integration with limited state intervention and with elements of a supranational Europe.

6 Rousseaux's doctoral dissertation, "Les mouvements de fond de l'économie anglaise, 1800-1913" (Rousseaux, 1938), was in the tradition of the Louvain school of business cycle analyses. However, as a professor, he had a division of labour with Dupriez, with Dupriez teaching cycles and Rousseaux microeconomics.

7 See Sándor Lámfalussy, *Flexibilité des prix et marchés monopolisés*, 1952, Mémoire, Institut des Sciences Économiques, Archives, Université catholique de Louvain, LV.L 14341. Dupriez was the rapporteur of the mémoire. Later, further in the Rousseaux tradition, Lamfalussy also published an article on the supply in the infra-short period (Lamfalussy, 1954b)

8 The Government of Gaston Eyskens passed important Economic Expansion and Regional Development Laws, very much inspired by the ideas of the (Flemish) economists of Louvain, for whom Eyskens was the standard-bearer.

9 The "Cercle Européen" was very active, with weekly meetings and events.

10 Several of them, including Lamfalussy himself, would later become members of "La Relève" (both a political club and a weekly magazine) close to the left wing of the Belgian Christian Democrat party (Persoons, 1975). It is also noteworthy that the keynote speaker at the conference for the 30th anniversary of La Relève, on 29 November 1975, was Jacques Delors.

11 "The roots of transnational Christian democracy's broad constitutional ideas and preferences for European integration were embedded in their largely shared collective experience of the overbearing centralised liberal nation-state, their regional political anchoring and identity, their preferences for societal - and political - organisation in line with the principle of subsidiarity derived from Catholic social teaching and federalist thought as it largely developed inside the intellectual tradition of personalism - and this combined with the borrowing of essentially liberal interwar ideas about functional market integration as a suitable mechanism for eventually bringing about political integration as well" (Kaiser, 2007, 10). So Christian Democrats' ideas constituted a kind of "pincer movement" on national sovereignty, based on the subsidiarity idea.

As Lamfalussy had still a refugee passport, he could not go to the United States for graduate studies. Thanks to contacts of Dupriez, he went to Nuffield College, Oxford, for his PhD. At the time, Lamfalussy, like many others, was intrigued by the issue of the reconciliation of macro- and microeconomics. For Lamfalussy, this preoccupation was strongly pragmatic. He had seen that other countries were developing new industries, which were notoriously absent in Belgium. So, he had more and more problems understanding the pattern of investment in Belgium. Lamfalussy's objective then was to reconcile imperfect competition theory with the theory of investment in order to explain the investment and growth performance of the Belgian industry.

Lamfalussy did not finish his thesis immediately. After two years in Oxford, in the summer of 1955, he returned to Belgium, as an economist at the Banque de Bruxelles¹². The Banque de Bruxelles was at that time under the leadership of Louis Camu, a former senior civil servant and Royal Commissioner for Administrative Reform. For him, banks were not only private institutions, but they also had a public function, as they played an essential role in the financing of the economy (Moitroux, 1995, 156). Moreover, Camu was very successful in attracting bright collaborators like Alexandre Lamfalussy, Albert Kervyn de Lettenhove or François Persoons. At the Banque de Bruxelles, Lamfalussy had also contacts with the bank's business relations, also via its agency network, giving him a better understanding of the structure of the Belgian industry. This would further influence his thesis, which he submitted in October 1958.

3. INVESTMENT AND GROWTH IN MATURE ECONOMIES. THE CASE OF BELGIUM

"Investment and Growth in Mature Economies. The Case of Belgium" (Lamfalussy, 1961a) is a revised draft of Lamfalussy's doctorate in Oxford. His supervisor was Philip Andrews, who was running the Applied Economics Seminar. Sir John Hicks was the main examiner on Lamfalussy's thesis committee.

In the Introduction, Lamfalussy sets out his dissatisfaction with general theories of growth: "I have grown increasingly sceptical about the usefulness of any theory of growth which would be so general as to be applicable to any country at any stage of development" (Lamfalussy, 1961a, p. xvii). He is in favour of a more policy-oriented and empirical (inductive) approach. Consequently, one should focus the theoretical analysis on concrete cases: "It is time now to have a look at individual countries and to work out theories which, although limited in scope, may begin to fill that still very large gap which lies between theory and empirical analysis" (Lamfalussy, 1961a, xviii).

Lamfalussy's real objective is to construct a theory which can explain economic growth in post-war Belgium. The theory he develops is therefore built on assumptions proper to post-war Belgium, a highly developed or "mature" industrial country, "a country where the share of industry in total output is large, where industry is diversified, where the standard of living is high, and where there exists an established class of entrepreneurs" (Lamfalussy, 1961a). He also confronts his theory with data on the development of Belgian industry between 1948 and 1957.

In the opening sentences of the book, Lamfalussy emphasises the importance of his analysis for the new economic environment which the process of European integration is creating, affirming also his European conviction: "In the 1960s, which will be witnessing the gradual opening of the European Common Market and (I hope) also the birth of other schemes for economic integration, the mobility of capital will assume increasing importance" (Lamfalussy, 1961, xiii). He stresses that,

¹² Lamfalussy tells it was a sheer accident he went to the Banque de Bruxelles: he got in touch with Louis Camu, the President of the Banque de Bruxelles, when he was giving tutorials to his son in Oxford.

for European economic integration to be a success, industries should grow where they are most competitive, implying, as a counterpart, the disappearance of industries which are not competitive.

The book consists of three parts: "Growth in post-war Belgium", "A theory of investment for mature economies" and "Investment policies in post-war Belgium". We will discuss them in turn, paying attention to Lamfalussy's policy conclusions as well.

3.1. Growth in post-war Belgium

In the first part of the book, Lamfalussy provides an overview of economic developments in post-war Belgium¹³. He notes that, as in most Western countries, industry accounted for about half of Belgium's gross national product. However, what distinguishes Belgium is the importance of sectors as mining and quarrying, basic metals and textiles. Together, they accounted for about 44 percent of industrial production, compared to 23 per cent on average for the O.E.E.C. countries. Lamfalussy (1961a, 14) observes that: "This pattern of output has a distinctly nineteenth-century flavour".

When analysing developments in the period 1948-1957, Lamfalussy argues that the economic situation in Belgium evolved quite differently from that in most Western European countries. In his view, Belgium was characterised by a weak development of domestic demand, leading to relative deflation: "The main stimulus to growth has been provided, at any rate since 1948, by exports, while the expansion of home demand has been substantially slower. As a result of this relatively deflationary situation, Belgium's balance of payments on current account displayed fairly constant surpluses" (Lamfalussy, 1961a, 13)¹⁴.

He also observed that income per head and wage costs were among the highest in Europe¹⁵.

Several factors contributed to this "relative deflation", especially a restrictive economic policy. In this respect, Lamfalussy raised the issue that "internal demand could have been increased through higher Government spending, and a devaluation could have put an end to the competitive disadvantage of Belgian industry" (Lamfalussy, 1961a, 29). However, in his policy conclusions, Lamfalussy was to reject a devaluation (cf. *infra*).

A crucial theme for Lamfalussy was that investment was low in Belgium as compared to other Western countries. This was not only related to the slow growth of domestic expenditure, but also

¹³ Lamfalussy (1961a, 189) mentions that his analysis of the Belgian economy is largely inspired by Louis Duquesne de la Vinelle (1954) and Albert Kervyn de Lettenhove (1955). Duquesne de la Vinelle became, in 1958, the first director of "Economic Structure" in the European Commission, a directorate that bore quite some resemblance to the French Planning Office (Maes, 2006). Kervyn was economic advisor at the Banque de Bruxelles. In 1959, he became the first General Commissioner of the Belgian Planning Office. Later he became a professor at the Université catholique de Louvain. Among his students he was known as "the red baron", also because of his sympathy for Joan Robinson. Lamfalussy further appreciated the analyses of François Persoons.

¹⁴ However, Belgian exports were also growing at a slower rate than those of other European countries (cf. *infra*).

¹⁵ For Lamfalussy (1958, 132) this was due to a steep rise in wages after the war, when Belgian industry recovered quickly. Moreover, the de facto revaluation of the Belgian franc in 1949 further deteriorated Belgium's competitive position. Lamfalussy attributed Belgium's recovery after the Second World War, the so-called "Belgian economic miracle" of 1945-1948, to a strong demand for Belgium's traditional products (textiles, steel and railway equipment) after the war. Other authors argue that part of the explanation for the "miracle" is also that Belgium suffered less from the Second World War and could restart its old industries quickly. Moreover, with the Gutt operation, Belgium focused on monetary stability, while other countries concentrated their reconstruction efforts more on the creation of a modern industrial structure (Van der Wee, 1985). As far as I could see, Lamfalussy did not discuss the Gutt operation (for instance, Gutt is not mentioned in the index of his book).

to a slower growth of exports than in most European countries. Belgian exports suffered from the high level of Belgian labour costs and an outdated composition (concentrated on traditional products of standard quality). As summarised by Lamfalussy himself (1961a, 28): "The most satisfactory explanation of the low level of capital expenditure in Belgium seems to lie in the slow growth of home demand, in the high level of costs and in the unfavourable pattern of exports. Sales abroad, though encouraged by excess demand in the neighbouring countries, do not seem to have been enough to induce strong capital development".

When analysing investment in Belgian industries in more detail, Lamfalussy observes that there were significant increases in the capital stock (as well as in productivity and in output capacity) in declining sectors, such as textiles or the firms producing railway equipment and rolling stock. Lamfalussy argues that current theories did not seem able to explain this phenomenon. He concludes, "We need therefore a thorough analysis of investment policies in declining or stagnating markets" (Lamfalussy, 1961, 68).

3.2. A theory of investment for mature economies

The purpose of the second, theoretical, part of the book is to work out a theory of investment which "fits Belgian statistics better". In line with the work of his teachers, like Rousseaux, Dupriez and Hicks, Lamfalussy focuses first on the microeconomics of his investment theory¹⁶.

The objective of Lamfalussy is to show that, "even on the assumption of economic rationality", i.e. of long-run profit maximisation, the process of decline is far more complicated than considered in traditional growth theories. He argues that "decline is not the reverse of growth and that the theory of economic development is not symmetrical. There is need for a specific theory of industrial decline" (Lamfalussy, 1961a, 79).

So, Lamfalussy sets out to construct a theory of investment based on microeconomic foundations. He starts with a theory of the firm in a situation of imperfect competition. Consequently, he does not follow the traditional equalisation of marginal revenue with marginal cost. He assumes that the entrepreneur is pursuing a policy of "normal competitive pricing". This will lead the entrepreneur to "fix a selling price at a level yielding a 'normal' rate of profit over the invested capital when the firm is working at optimum capacity" (Lamfalussy, 1961a, 40)¹⁷. The normal rate of profit is equal to opportunity cost (the rate of interest) plus a premium for uncertainty proper to the industry.

Lamfalussy is not very happy with the traditional theories of investment which distinguish between three types of investment: expansion investment, capital deepening and innovative investment. For Lamfalussy, the crucial distinction is between "enterprise" and "defensive" investment. This is very much related to whether the firm is operating in expanding or stagnating markets. Enterprise investment is typically undertaken in expanding markets by growing firms, when profits are expanding. Defensive investment, on the other hand, is carried out mainly as a protective device in stagnating or declining markets, "when profits are squeezed, when competition is active, when the lowering of costs becomes a matter of survival rather than of expansion" (Lamfalussy, 1961a, xvi).

Lamfalussy emphasises that these are very different types of investment. Enterprise investment implies substantial increases in capacity as well as major technological innovations. Defensive

¹⁶ The style of Lamfalussy's theoretical chapters bears quite some similarity with Hicks' approach, like in *Value and Capital* (Hicks, 1939): although no mathematical equations are presented, one feels that the prose follows a mathematical line of reasoning.

¹⁷ Lamfalussy (1961a, 188) acknowledges here the influence of Andrews' (1949) analysis of manufacturing business.

investment entails mainly the reorganisation of existing factories: "The distinctive mark of defensive investment in comparison with enterprise investment is its exclusive reliance upon minor innovations, upon the improvement of existing capital goods and upon rationalization" (Lamfalussy, 1961a, 114). A consequence is that the share of building expenditure in total capacity outlay is lower in the case of defensive investment than in that of enterprise investment.

Typical for defensive investment is also that, in a stagnating or declining market, an entrepreneur will try to achieve his policy targets (such as the reduction in costs, or the increase in output capacity, or both) by spending as little as possible on capital goods. Lamfalussy further shows that defensive investment might even appear profitable to entrepreneurs with a relatively short time horizon.

Lamfalussy acknowledges that, for his distinction between enterprise and defensive investment, he was inspired by an article of Hicks (1954) on imperfect competition, "which made me realize how important it was whether an entrepreneur was a 'snatcher' or a 'sticker'". However, Lamfalussy also points out where his analysis differs from Hicks's: "The choice between enterprise investment and defensive investment may be exclusively a matter of temperament. Although I suspected that an explanation on this basis could have been much simpler (and perhaps even more valid), I worked out the main line of argument in terms of 'objective' circumstances" (Lamfalussy, 1961a, 188).

3.3. Investment policies in post-war Belgium

In the third part of the book, Lamfalussy confronts his theory with data on investment in Belgian industries. What was particularly striking about Belgium was the widespread use of defensive investment throughout the economy. According to Lamfalussy, more than 50 per cent of Belgian output was coming from industries relying on defensive investment.

One crucial consequence was that capital was prevented from flowing from declining or stagnating industries to expanding sectors, thereby contributing to a freezing of the structure of industry. "The most obvious corollary to defensive investment has been the stability of the structure of industry" (Lamfalussy, 1961a, 155).

There were thus two reasons why Belgium's pattern of production changed so little. Firstly, Belgium invested a smaller part of her income. Secondly, a greater part of capital expenditures was directed towards declining industries as textiles, coal mining and the production of railway equipment.

The dominance of defensive investment had serious consequences for economic growth. Defensive investment can, in the first instance, result in quite substantial increases in productivity. However, there will be no (or very little) growth in new industries. Over time, this will have major consequences as the potential for productivity increases in declining industries is limited. "Opportunities for increasing productivity within the existing plants will have been exhausted, and as the profit pattern does not stimulate major innovations and a substantial rise in capital spending, the rate of increase in productivity will slow down. For the same reason, there will be no major shift ... in the composition of exports. It follows that the cost disadvantage of the country will worsen and that there will be no improvement, either, on account of a change in the commodity composition of exports" (Lamfalussy, 1961a, 165).

A vicious circle then becomes inevitable: "The slow growth of home demand and the competitive disadvantage on foreign markets reduce profit rates; this, in turn, favours the widespread use of defensive investment which puts a brake on home expenditure as well as on exports. The pressure

on profit rates is therefore maintained, and the circle remains as vicious as ever" (Lamfalussy, 1961a, 165)¹⁸.

3.4. Policy conclusions

So, the obvious challenge for economic policy was to pull Belgium out of the vicious circle. However, Lamfalussy is very negative on Belgian economic policy-making, claiming that "nothing important has been done to break the vicious circle" (Lamfalussy, 1961a, 167)¹⁹.

In his discussions on policy options, Lamfalussy rejects increased deficit spending or a devaluation. He fears that higher deficit spending could endanger the external balance. He also rejects a devaluation, advancing three counter-arguments: firstly, there is the "sensitivity of Belgians regarding devaluations", which might raise inflation and inflationary expectations; secondly, he has doubts about the effect of a devaluation on the balance of trade, given that one does not know the price elasticities of Belgian imports and exports; and thirdly, the most important argument, while a devaluation would improve the competitive position of Belgian exporters and increase the profit rates of the exporting industries, Lamfalussy doubts that such an improvement would have a rapid impact on investment policies. "It could take years of higher profits and of more stable profit rates before entrepreneurs would adopt a more 'dynamic' line of approach, entailing radical innovations and the large-scale building of new plants. And meanwhile the rise of internal prices or the faster growth of productivity abroad could gradually offset the initial advantage due to the more favourable rate of exchange" (Lamfalussy, 1961a, 171).

Lamfalussy is in favour of a direct approach, "a deliberate Government action with the purpose of raising investment". However, what matters for Lamfalussy is the type of investment, "Government policy raising the level of public investment and subsidizing expanding firms (rather than declining ones) can be efficient only if public investment is made in the right places and if Government assistance is granted to the right industries. The main argument of this book has been that what really matters from the point of view of long-run growth is the *type* of investment and the distribution of capital expenditure by industry rather than the overall volume of capital formation" (Lamfalussy, 1961a, 173). He supports the action of the new government of Gaston Eyskens which set up a planning office, "In July 1959 the Belgian Government took steps in the right direction. A Government Planning Office was set up the purpose of which is to work out short and long-run plans for public expenditure, and to make suggestions as to the orientation of private investment projects. Simultaneously, subsidies were provided to stimulate industry's capital formation" (Lamfalussy, 1961a, 174, fn.1).

4. THE UNITED KINGDOM AND THE SIX. AN ESSAY ON ECONOMIC GROWTH IN WESTERN EUROPE

In "*The United Kingdom and the Six. An Essay on Economic Growth in Western Europe*", Lamfalussy sets out to analyse one of the most crucial European policy problems of the 1960s: the divergence in economic performance between the countries of the European Community and the United Kingdom²⁰.

¹⁸ Lamfalussy (1958, 129) argues that this is a kind of an "open economy" version of Kaldors' Keynesian theory, linking the share of profits in national income and the volume of investment.

¹⁹ There was a quite widely held opinion among young economists, both Francophone and Flemish, that European integration would contribute to break the vicious circle.

²⁰ Naturally, Belgium was an exception among the countries of the European Community (and had been the topic of Lamfalussy's preceding book).

Earlier on, Lamfalussy had already gone into this issue in a short article in *Lloyds Bank Review*. In his view, there were "no obvious figures which would point to a causal relationship between the establishment of the Common Market and the rapid growth of its members" (Lamfalussy, 1961b, 1)²¹. Instead, he argued that the causal relation was the other way round: that as a result of the rapid growth of the Six, and thanks to their favourable external balances, the Common Market became an early success.

Under the influence of Robert Triffin, Lamfalussy took a sabbatical at Yale University in the academic year 1961-1962²². It gave him the opportunity to go deeper into the issue of Europe's post-war growth performance, turning to the question: "If not the Common Market, *what* then made the E.E.C. countries grow faster than Britain?" (Lamfalussy, 1963a, vii).

To approach this issue, Lamfalussy opts for a "semi-empirical (but not econometric), semi-theoretical (but not mathematical) approach". For him, a crucial problem is the "deep gulf between the day-to-day discussions of vital policy issues and the more serene but necessarily abstract academic studies". With his study, Lamfalussy has a double objective. On the one hand, he hopes that his type of analysis might stimulate more policy-oriented research in the academic world²³. His other objective is to weigh on the economic policy debate concerning a crucial issue for the future of Europe.

The study contains ten chapters. In the first two, Lamfalussy sketches the divergences in economic performance, putting them into a historical perspective as well. In chapters Three to Eight, he discusses the "limiting factors" for the process of economic growth, namely labour, the balance of payments and capital accumulation. In the last two chapters, the policy implications are discussed.

4.1 The widening gap

Lamfalussy starts his study by presenting a general picture of economic developments in the United Kingdom and the six countries of the European Economic Community, covering the period 1950-1961. Looking at the main macroeconomic data, Lamfalussy observes a widening gap between the economic performance of the United Kingdom and that of the EEC members. This is not only the case for economic growth, but also with respect to inflation and the balance of payments. The crucial question is then which factors were behind this divergence in economic performance.

4.2. The factors limiting the growth process

Lamfalussy starts his analysis of the determinants of the growth process on the supply side, with an analysis of the supply and productivity of labour²⁴. He concludes that the crucial difference between the United Kingdom and the countries of the European Community concerns labour

²¹ A pessimistic assessment. Eichengreen (2007, 181) reports that, applied to the period 1959-1969, incomes in the Six might have been 4 to 8 percent lower without the Common Market.

²² Triffin, who Lamfalussy got to know through Camu, argued that Lamfalussy should also have a US experience.

²³ Lamfalussy was concerned about the orientation of research in the (American) academic world, "One of the strongest impressions I have derived from my sabbatical return to academic life is that many of the best brains are engaged in a type of theoretical (and sometimes even empirical) work which is unlikely to yield useful results for policy purposes in the short period" (Lamfalussy, 1963a, xiv).

²⁴ Lamfalussy (1963b), drawing on Harrod, sets out a formal open economy growth model.

productivity: "The common feature of the growth pattern in the E.E.C. countries (relatively to the U.K.) does *not* lie in any faster rise of employment; it lies in a generally more rapid advance of the productivity of labour" (Lamfalussy, 1963a, 33).

In the following chapter, he turns to the demand side and the balance of payments, especially exports. He argues that they work through two channels. There is a direct impact, as investment is influenced by the growth of exports (a cherished theme of Lamfalussy). Moreover, there is an indirect channel, as a weak balance of payments position can force the government to adopt restrictive economic policies (something which often happened in the UK)²⁵.

Lamfalussy argues that exports played a vital role in influencing the balance of payments on both sides of the Channel. "This is what distinguishes the Common Market's export-oriented growth from the British development: E.E.C. exports expanded rapidly enough to make it possible for the member countries to grow faster than Britain *and* at the same time to improve their balance of payments" (Lamfalussy, 1963a, 47). In Chapter 5, he deepens his analysis of the divergences in export performance, emphasising the slow increase of British productivity as the main reason for the slow growth of British exports. So, the slow growth of British productivity emerges, both from an analysis of supply and of demand, as the main factor behind the slow economic growth in the UK²⁶.

Chapters 6, 7 and 8 explore the intricate relationship between capital accumulation and the rate of growth of productivity. Lamfalussy concludes that it was not slower technological and organisational progress in the United Kingdom's manufacturing sector but "export-led" growth that enabled the continental countries to outstrip the UK. He argues that the rapid development of German and Italian exports raised both the investment and savings ratios, thereby enabling capacity and per capita productivity to grow faster without producing inflation or pressure on the balance of payments.

Lamfalussy rounds off his argument by showing the virtuous circle of the EEC growth performance, "competitive advantage in world markets, leading to faster growth of exports; export-oriented growth, raising the share of investment in the national product; higher investment ratio, calling forth a faster growth in the productivity of labour and leading, therefore, to renewed competitive advantage in world markets" (Lamfalussy, 1963a, 116-117). The virtuous circle of the EEC countries contrasts naturally with the vicious circle of the United Kingdom (or Belgium, as argued in his earlier work).

The main question left is then how the EEC countries managed to get into a virtuous orbit; in other words, how did they get this initial competitive advantage over the UK? For Germany, Italy, and the Netherlands, low money wages (relative to productivity) due to undervalued currencies and an easy labour market were crucial. They also had low military expenditure relative to the UK. France had one big advantage over the UK in that it did not have to support a key currency and had no inhibitions about devaluation. France's growth, up to 1958, was kept going, mainly, by high domestic expenditure, leading in turn to inflation. It was only after the double devaluation of 1957-58 that the country's growth became export-oriented. But both types of take-off were impracticable for Britain: "High labour costs and military expenditure prevented her from following the export-oriented (but high-investment) take-off of Germany, Italy and the Netherlands; and she missed the

²⁵ Lamfalussy acknowledges here the influence of Kindleberger (1961 and 1962). However, Kindleberger is more cautious concerning the relation between growth and exports.

²⁶ Lamfalussy's framework of analysis, as further developed in Lamfalussy (1963c), would later also be taken up by the National Bank of Belgium (1980-1981) in a major analysis of how the Belgian economy ran out of steam.

import-oriented (and also high-investment) take-off of France, because she could not afford to disregard the equilibrium of her balance of payments" (Lamfalussy, 1963a, 120).

4.3. Policy implications

In the last chapter, Lamfalussy goes into the policy conclusions. He discusses how the competitive advantage of the EEC countries could be eroded. He notes that the most "natural" way would be an increase in wages, which would offset the faster increase in productivity. However, he believes that national wage policies might offset this. "Were the wage formation exclusively the outcome of market forces, one could be reasonably certain that the persisting shortage of labour on the Continent would speed up the rise in wages. The growing interest in national wages policies may, however, bring a corrective to this trend. This is the more so as a wages *policy* in these countries need in no way imply a wage *freeze*" (Lamfalussy, 1963a, 123).

For Lamfalussy, it is more likely that reactions in the rest of the world might disturb the European export-led growth strategy, as it is impossible for all countries around the globe to adopt an export-oriented growth pattern. Lamfalussy further remarks that, even with a balance of payments surplus for the EEC as a whole, certain countries can still have trade deficits. However, the creation of the European Economic Community has brought significant changes. For Lamfalussy, the EEC is not only a customs union, but also an organization for co-ordinating the economic policies of its member countries. He argues further that the effective co-ordination of economic policies is not only a necessary condition for the successful operation of the customs union, but that it will be of crucial importance for the maintenance of a high rate of growth of the EEC countries.

Lamfalussy is optimistic about the future of the EEC and argues that it is quite possible that the EEC will prove able to deal with the imbalances within the Community in a way that will not lead to any slowdown in expansion. He argues that, thanks to the EEC, an asymmetric adjustment to balance of payments imbalances might be avoided: "If the surplus countries can be persuaded to expand their home demand at the same time as the deficit countries deflate their own economy, the balance can be restored without undue damage to the rate of growth of the Community as a whole ... it is certain that the existence of an administrative machinery and of an institutional framework (already successful in other fields) will improve the ability of the area to deal with such problems" (Lamfalussy, 1963a, 131)²⁷.

Lamfalussy is also in favour of strengthening monetary integration, very much in line with Triffin's plea for a European Reserve Fund²⁸, "*A fortiori*, the organization of common monetary institutions could be of great help in coping with possible balance of payments problems of the Community. For instance, the pooling of gold and foreign exchange reserves would greatly strengthen the E.E.C.'s resilience to export-induced recessions" (Lamfalussy, 1963a, 132). However, Lamfalussy takes a more balanced position than Triffin, not only in favour of monetary integration, but arguing that policy-coordination is also necessary: "the prerequisite to a successful pooling of reserves is the effective co-ordination of economic policies"²⁹. This contrasts with Triffin (1957), who argued that "Monetary unification would not require, in any manner, a full unification of national levels of

²⁷ A rather optimistic assessment. Asymmetric adjustment and the sharing of the burden of adjustment would be key themes in European monetary integration debates in the following decades.

²⁸ See, for instance, Triffin, 1958 or the Annexes 4 to 8 in Ferrant and Sloover, 1990. For a general overview of the idea of a European Reserve Fund, see Maes and Buyst, 2004.

²⁹ Later, as a member of the Delors Committee, Lamfalussy made a well noted contribution on the co-ordination of budgetary policies, concluding that "fiscal policy coordination appears to be a vital component of a European EMU" (Lamfalussy, 1989, p. 93). However, the sentences on "binding rules on budgetary policy" were of German inspiration.

prices, costs, wages, productivity, or living standards. ... Neither does monetary unification require a uniformization of the budgetary, economic, or social policies of the member countries. ... The problem of monetary unification is therefore a political rather than an economic problem". Lamfalussy is hopeful that this co-ordination can be accomplished, "the smooth working of the E.E.C. institutions during the first five years of their existence (be it the result of good luck or of good management) has provided a safe and practical basis for a policy of enlightened co-operation" (Lamfalussy, 1963a, 132).

Lastly, Lamfalussy turns to the issue of British entry. In his view, it could be beneficial for the UK to join the EEC. The crucial argument for him was that a British entry might be part of some "shock-treatment which would lead public opinion in Britain to recognize the necessity of raising the share of investment in the national product. Higher investment would require a higher savings ratio, and this would almost inevitably entail a change in income distribution. This seems to be a prerequisite to faster growth anyhow; but adhering to the E.E.C. might make such a move more acceptable. For similar reasons, entry into the Common Market might also induce public opinion to accept some degree of planning" (Lamfalussy, 1963a, 133).

Lamfalussy further observes that such co-operation presupposes that Britain is prepared to play the game according to the rules of the Rome Treaty, "not only the game of the customs union, but also that of common economic policies". Lamfalussy admits that, in the final analysis, the choice is a political one. But he argues that "joining the E.E.C. would offer a more adequate framework for effective growth policies than the present" (Lamfalussy, 1963a, 135).

5. THE IMPACT OF LAMFALUSSY'S WRITINGS

In the first instance, we will take a look at the contemporary reactions to the work of Lamfalussy. Then we will go into the economic history literature on Europe's post-war growth performance and how Lamfalussy's analysis is considered there.

5.1. Contemporary reactions

Lamfalussy's analyses stimulated debates in Belgium. In an early article, Lamfalussy (1959a) developed a Keynesian income - expenditure model to analyse economic growth and the balance of payments in Belgium for the period 1948-1957. He argued that Belgium was in situation of "relative deflation", with slow growth and a balance of payments surplus. The reasons for this were the high savings propensity of households and the weak investment propensity of firms. His views were not very well received at the National Bank of Belgium. Three economists from the Research Department (Beauvois, Coenen and Reuss) drafted a reply to the article of Lamfalussy (Note 59/9/6, Research Department, Archives NBB)³⁰. The reply of the NBB was published in the *Bulletin de l'Institut de Recherches Économiques et Sociales*, under the signature of Roland Beauvois³¹. Beauvois (1959, 607) compares Lamfalussy's views with those of Alvin Hansen (an early disciple of Keynes, famous for his view that investment opportunities were limited, which might lead to secular stagnation) and reproaches Lamfalussy not to have traced the causes of the deflationary

³⁰ The paper was sent to Lamfalussy under the signature of "Jean Berlaimont" (a reference to the Boulevard de Berlaimont where the National Bank of Belgium is located).

³¹ Beauvois was the acting head of the Analysis service, but the article was published under his affiliation as assistant at the Université Libre de Bruxelles.

tendency³². In a vivid reply, Lamfalussy (1959b) defends his views and his method of analysis, based on an economic model: "L'analyse de mon article a été faite sous forme d'un modèle complet, ne faisant appel à aucun facteur exogène. Je crois avoir fourni une explication logiquement cohérente et en concordance avec les faits observés. Elle n'est pas en contradiction avec les éléments d'explication fournis par Mr. Beauvois; elle est simplement différente. Ce sont là deux méthodes d'approches qui peuvent se compléter"³³ (Lamfalussy, 1959b, 621-622). He goes on to argue that his way of analysis is more rigorous and more apt for economic policy conclusions than Beauvois' emphasis on "accidental" factors. So, while the analyses of Beauvois and Lamfalussy were largely complementary, Lamfalussy's method of analysis was more in line with the evolution of the economics profession.³⁴

Lamfalussy's first book, *"Investment and Growth in Mature Economies. The Case of Belgium"*, was reviewed in *The Economic Journal* by Sidney Dell. He disagrees with the author's claim that the main novelty of the book lies in the theoretical part. Rather, he stresses the empirical merits and the policy relevance of the study. "His theoretical conclusions are, perhaps, less surprising to growth theorists than he himself appears to suggest. The book may therefore be found much more valuable for its empirical examination of Belgian investment policies than by virtue of its theoretical contribution. It certainly throws new light on practical issues of growth policy that are of critical importance not only for Belgium but also for other countries in a position that is in some respects similar, notably Britain" (Dell, 1962).

Writing in *De Economist*, Hartog gave a very positive review of *"Investment and Growth in Mature Economies. The Case of Belgium"*. He emphasised both the theoretical novelties of the analysis as well as, and more particularly, the realistic and operational character of Lamfalussy's analysis: "Dit is een boek dat iedere beoefenaar van de economische wetenschap graag had willen schrijven. De auteur constateert dat de na-oorlogse ontwikkeling van de Belgische economie niet past in de traditionele groeitheorie. Hij brengt daarom een zodanige herziening in deze theorie aan dat het conflict verdwijnt, en verifieert vervolgens deze verfijnde groeitheorie aan de hand van de Belgische ervaringen ... Doordat hij zijn vertrekpunt kiest in een empirische situatie en als eis stelt dat de uitkomsten van de analyse verifieerbaar moeten zijn, wordt een realistische en operationele theorie verkregen, wat men niet van alle groeimodellen kan zeggen. Bij de statistische toetsing wordt een grote vaardigheid en tegelijk degelijkheid in het groeperen, hanteren en interpreteren van de Belgische statistische gegevens aan de dag gelegd"³⁵ (Hartog, 1962, 287).

³² It is further noteworthy that Vice-Governor De Voghel paid particular attention to the evolution of internal and external demand in his presentation of the economic and financial situation to the Council of Regency on 1 July 1959. The conclusion of the briefing note says "Contrairement à une opinion très répandue, l'origine de la récession en Belgique ne se trouve pas dans l'évolution de la demande intérieure" ("Contrary to widespread opinion, the origin of the recession in Belgium does not lie in the development of domestic demand") (Annex, Minutes, Council of Regency, 1 July 1959, Q650, Archives NBB). As usual in the Minutes, no reference was made to a specific author.

³³ "The analysis in my article was in the form of a complete model, using no exogenous factors at all. I believe I have provided a logically coherent explanation in line with the observed facts. It does not contradict the explanatory elements given by Mr Beauvois; it is simply different. Here we have two methods of approach that may complement one another."

³⁴ Naturally, in his book on investment and growth, Lamfalussy (1961a) will go deeper into Belgium's investment performance.

³⁵ "This is a book that every practioner of economic science would like to have written. The author observes that the post-war development of the Belgian economy does not fit in with the traditional growth theory. He therefore introduces such a revision to this theory that the conflict disappears, and he subsequently verifies this refined growth theory on the basis of Belgian experience. Because he chooses an empirical situation as his starting point and requires the findings of the analysis to be verifiable, a realistic and operational theory is obtained, something which cannot be said about all growth models. When performing statistical checks, the work displays considerable competence and at the same time reliability in gathering, processing and interpreting Belgian statistical data."

Lamfalussy's next book, "*The United Kingdom and the Six. An Essay on Economic Growth in Western Europe*", was reviewed, *inter alia*, in *The Economic Journal*, *The American Economic Review*, *Economica* and *De Economist*³⁶. In general, a key theme in the reviews is Lamfalussy's objective of constructing an economic theory which is empirically verifiable and policy-relevant.

For Makower in *The Economic Journal*, Lamfalussy did not succeed in his goal of bridging the "deep gulf" between practical discussions of economic policy and abstract academic studies. However, he admits that "the essentially eclectic approach, the absence of wild claims and the sober, scholarly handling make his views on the questions of the United Kingdom joining the European Economic Community well worth reading" (Makower, 1963, 706).

Mishan in *Economica* agrees with Lamfalussy that, for this type of broad study, one cannot make much use of refined theoretical arguments or high-powered econometric models and agrees with the semi-empirical, semi-theoretical approach that Lamfalussy adopts, observing that "the book is in many ways a model of how such research should be conducted; in particular, his skill in keeping abstract reasoning and statistical illustration marching in step through the book is to be commended" (Mishan, 1963, 437).

Andriessen in *De Economist* is, more or less, on the same line as Mishan, but he also stresses Lamfalussy's preference for "dismal" topics, "Boeken op het gebied van de toegepaste economie, die voldoende theoretische diepgang hebben en die zich toch plezierig laten lezen, zijn schaars. Lamfalussy is ... erin geslaagd voor de tweede maal een dergelijk boekje te schrijven. Men kan ten hoogste zeggen dat het voor een land geen compliment betekent als Lamfalussy er zijn aandacht aan wijdt - zoals vorige maal België staat nu Engeland als trage groeier te kijk"³⁷ (Andriessen, 1963, 784).

So, the general conclusion which emerges from these reviews, is that Lamfalussy was especially appreciated as an applied economist, who knew to combine theory and empirical data in order to analyse crucial policy problems. These elements also explain why Lamfalussy's work is still considered as influential in the economic history literature on Europe's post-war growth performance.

5.2. The economic history literature

Even if there is no consensus in the economic history literature on the causes of Europe's post-war performance, Lamfalussy's work is still quoted in many analyses. With his focus on trade and investment, Lamfalussy was clearly focusing on the "engines of Europe's growth of the 1950s" (Eichengreen, 2007, 86). In general, he is portrayed as an influential representative of the Keynesian approach.

Most attention is given to his essay "*The United Kingdom and the Six*". Boltho (1982, 37) classifies it among the "analytical studies" of Europe's comparative growth experience, together with contributions by Denison, Kindleberger and Maddison. Crafts and Toniolo (1996, 12) consider it as an important contribution to the Keynesian approach of export-led growth, together with

³⁶ It is noteworthy that neither of Lamfalussy's two books was reviewed in the *Tijdschrift voor Economie*, the journal of the Flemish economists from Leuven.

³⁷ "Books in the field of applied economics which have sufficient theoretical depth are rare. Lamfalussy has succeeded in writing such a book for the second time. The most that one can say is that it is no compliment for a country if Lamfalussy devotes his attention to it - just like Belgium last time, it is now England which is shown up as a slow-growing country."

contributions by Beckermann (1962) and Thirlwall (1979)³⁸. The approach emphasises virtuous (or vicious) circles, in which stronger export growth promotes higher investment, which strengthens productivity and investment, further reinforcing exports (see also Boltho, 1996, 110 and Van der Wee, 1986, 272).

Looking at the volumes edited by Boltho (1982) and Crafts and Toniolo (1996), one sees that Lamfalussy's essay was also influential in the discussions on Italy³⁹. Rey, in his contribution to the Boltho (1982) volume, does not agree with Lamfalussy's view (shared by Graziani and Stern) that Italy's growth was export-led and that the changes in Italy's industrial structure were determined by foreign demand. Rey argues that Italy's growth was largely of domestic origin, driven by a virtuous circle of high investment, high productivity gains and high profits, even if he admits that "the contribution of external demand accelerated through time" (Rey, 1982, 509). In a later analysis, when discussing the conditions on the demand side of Italy's "economic miracle", Rossi and Toniolo (1996, 441) mention Lamfalussy's argument that "world-wide demand for goods in which Italy enjoyed a comparative advantage increased rapidly".

As one might expect, the work of Lamfalussy on Belgium is also discussed in the volumes of Boltho (1982) and Crafts and Toniolo (1996). Cassiers, De Villé and Solar (1996) characterise the work of Lamfalussy as "influential". They pay attention to Lamfalussy's concept of defensive investment, "Enterprises were faced by a squeeze on profits, as the result of high wage and energy costs and low export prices, and reacted by investments designed to rationalize production. They modified existing productive facilities only on the margin without renewing or diversifying them" (Cassiers, De Villé and Solar, 1996). Van Rijckeghem (1982) reports that later studies confirmed Lamfalussy's assertion that some of the highest productivity growth rates were achieved in stagnating or declining industries such as textiles, leather, or wood and furniture. However, the issue of the contribution of structural change to productivity growth is less clear⁴⁰.

Most of the criticism of Lamfalussy concerns the causes of the slow economic growth and weak investment performance in Belgium. Most authors point to the importance of the holding companies in Belgium and their lack of a dynamic investment strategy. So argued Van Rijckeghem (1982, 590): "Although Lamfalussy correctly diagnosed the Belgian *malaise* of the 1950s, he did not identify its deeper causes. ... More radical observers have pointed out the lack of dynamism of the large financial holding companies whose assets were largely concentrated in the sectors where defensive investment took place" (see also Cassiers, De Villé and Solar, 1996)⁴¹. However, food and textiles, two sectors employing defensive strategies, were not under the control of the holdings. So, Lamfalussy's analysis concerns a larger spectrum of sectors than those in which the holding companies played a dominant role.

³⁸ Beckermann (1962, 917) also quotes Lamfalussy's earlier book on Belgium.

³⁹ It is interesting to note that there were quite a few similarities in economic thought and policy-making between Belgium and Italy in the post-war period, cf. Maes, 2008. There are also certain similarities between the open economy growth models of Lamfalussy and the work at Svimez, l'Associazione per lo sviluppo dell'industria nel Mezzogiorno, an association to promote the development of industry in Southern Italy, founded in December 1946. The main objective of Svimez was to study the problems of industrial development in Southern Italy and to draw up concrete programmes to strengthen it. Keynesian models, like those of Harrod and Kaldor, were seriously studied and applied at Svimez.

⁴⁰ Van Rijckeghem (1982) argues that studies show that changes in output structure made only an insignificant contribution to the overall productivity growth rate. For instance, applying shift-and-share analysis, Daems (1978, 133) argues that the Belgian economy was lacking in growth in every industrial sector and that its poor performance can only very partially be explained by structural deficiencies. Also for other countries, several studies indicate that structural change contributed little to explaining growth (Cassiers et al., 1996, 198). However, applying Broadberry's methodology, Crafts and Toniolo (2008, 8) find that structural change made quite an important contribution to labour productivity growth.

⁴¹ Van Rijckeghem (1982, 590) further argues that restrictive economic policies were a crucial factor in the deflationary climate in Belgium in the 1950s, suggesting, rather surprisingly, that Lamfalussy did not take them into account in his analysis.

6. CONCLUSION

Alexandre Lamfalussy has been highly influential in the process of European monetary and financial unification. This paper has looked into the economic thought of the "Young Lamfalussy" (from the mid 1950s to the mid 1960s). He started his career as an academic, focusing on growth and investment theory and Belgium's and Europe's growth patterns in the post-war period. In "*Investment and Growth in Mature Economies. The Case of Belgium*" (Lamfalussy, 1961a), he introduced the concept of "defensive investment", aimed at rationalising production. However, in the medium to long run, the scope for productivity increases with defensive investment is limited, restraining the growth potential of the economy. In "*The United Kingdom and the Six. An Essay on Economic Growth in Western Europe*" (Lamfalussy, 1963a), Alexandre Lamfalussy emphasised virtuous (or vicious) circles, in which stronger export growth promotes higher investment, which strengthens productivity and investment, further reinforcing exports. His ideas quickly became influential and provoked quite some debate. Also in the recent economic history literature on Europe's post-war economic growth, his work is still regarded as important.

Naturally, Lamfalussy's analyses are far too subtle to be summarised in a few pages. However, they fit broadly into the Keynesian tradition. His analysis of vicious and virtuous circles clearly showed that the free market economy was not stable and self-adjusting, a clear indication of a Keynesian *Weltanschauung* (way of thinking). Lamfalussy's analytical frameworks were often inspired by Keynesian growth models. In his policy conclusions, he was a clear partisan of more planning in economic life, even giving a role to the government to influence the composition of investment. Like many other progressive economists of the time, Lamfalussy was clearly more interventionist than the (textbook) Keynesian view of steering effective demand. During his later life, Lamfalussy, would gradually become more sceptical of planning and Keynesian macroeconomic policies. He would put more and more emphasis on stability-oriented policies (see Lamfalussy, 2006, 8).

However, certain elements, typical of Lamfalussy's later work, were already clearly present in his early writings, especially a strong European conviction and an eclectic approach towards economics. From his student days, Lamfalussy was a convinced European. In his writings, he argued in favour of strengthening European integration. In the monetary area, he favoured the creation of a European Reserve Fund, as advocated by Triffin. However, he took a more balanced position than Triffin, stressing also the need to strengthen policy coordination.

There is also a very strong continuity in Lamfalussy's approach to economics. It is an eclectic and pragmatic approach, blending economic theory and empirical data beautifully to elucidate crucial policy problems, very much in line with the approach of Dupriez, his teacher at Louvain. He described it himself as a "semi-empirical (but not econometric), semi-theoretical (but not mathematical) approach". Moreover, and very fundamentally, his focus is always on crucial policy problems. He contributed to bridging "the deep gulf between the day-to-day discussions of vital policy issues and the more serene but necessarily abstract academic studies".

References

Archives: National Bank of Belgium

Université catholique de Louvain

- Abraham, J.-P., 1972, Van regionale tewerkstelling tot leefbare wereld. Economische perspectieven toen en nu, in Dondeyne A. (ed.), *Gelovend in de wereld*, Antwerpen: Patmos.
- Andrews, 1949, *Manufacturing Business*, London: MacMillan.
- Andriessen, 1963, Review of The United Kingdom and the Six. An Essay on Economic Growth in Western Europe, *De Economist*, Vol. 111, No. 11, pp. 784-786.
- Beauvois, R., 1959, A propos de l'article "Essai sur la croissance économique et la balance des paiements de la Belgique: 1948-1957", *Bulletin de l'Institut de Recherches Économiques et Sociales*, Vol. 25, No. 6: 605-614.
- Beckerman, W., 1962, Projecting Europe's Growth, *Economic Journal*, Vol. 72, No. 288: 912-925.
- Boltho, A., 1982, Growth, A. Boltho (ed.), *The European Economy: Growth and Crisis*, Oxford: O.U.P., pp. 9-37.
- Boltho, A., 1996, Convergence, Competitiveness and the Exchange Rate, N. Crafts & G. Toniolo (eds.), *Economic growth in Europe since 1945*, Cambridge: C.U.P., pp. 107-130.
- Cassiers, I., De Villé, P. & Solar, P. M., 1996, Economic growth in postwar Belgium, N. Crafts & G. Toniolo (eds.), *Economic growth in Europe since 1945*, Cambridge: C.U.P., pp. 173-209.
- Crafts, N. & Toniolo, G., 1996, Postwar growth: an overview, N. Crafts & G. Toniolo (eds.), *Economic growth in Europe since 1945*, Cambridge: C.U.P., pp. 1-37.
- Crafts, N. & Toniolo, G., 2008, *European economic growth, 1950-2005: an overview*, CEPR Discussion paper, No. 6863.
- Daems, H., 1978, *The holding company and corporate control*, Leiden: Martinus Nijhoff.
- Dell, S., 1962, Review of Investment and Growth in Mature Economies. The Case of Belgium, *Economic Journal*, Vol. 72, No. 286, pp. 404-406.
- Dupriez, L.H. 1947. *Des mouvements économiques généraux*, 2 Vols., Leuven: IRES
- Dupriez, L.H. 1959, *Philosophie des Conjonctures Économiques*, Louvain: Nauwelaerts.
- Dupriez, L.H. 1961, *Progrès économique ou croissance*, Bruxelles: Société Royale d'Economie Politique.
- Duquesne de la Vinelle, L., 1954, Le problème structurel et l'expansion économique en Belgique, *Bulletin de l'Institut de Recherches Économiques et Sociales*, Vol. 20, No. 5: 513-537.
- Eichengreen, B., 2007, *The European Economy Since 1945*, Princeton: Princeton University Press.
- Ferrant, C. et J. Sloover, 1990, avec la collaboration de M. Dumoulin et O. Lefebvre, *Robert Triffin. Conseiller des Princes, Témoignage et Documents*, Editions Ciaco.
- Hartog, 1962, Review of Investment and Growth in Mature Economies. The Case of Belgium, *De Economist* Vol. 110, No. 3, pp. 287-289.
- Hicks, J., 1939, *Value and Capital*, Oxford: Clarendon Press.
- Hicks, J., 1954, The Process of Imperfect Competition, *Oxford Economic Papers*, February.
- Kaiser, W., 2007, *Christian Democracy and the Origins of the European Union*, Cambridge: C.U.P.
- Kervyn de Lettenhove, A., 1955, *Quelques conditions d'une expansion économique en Belgique*, Comptes Rendus des Travaux de la Société Royale d'Économie Politique de Belgique, No. 238.
- Kindleberger, C., 1961, Foreign Trade and Economic Growth: Lessons from Britain and France, 1850 to 1913, *Economic History Review*, Vol. XIV, No. 2, 290-305.
- Kindleberger, C., 1962, Foreign Trade and Growth: Lessons from British Experience since 1913, *Lloyds Bank Review*, No. 65, 16-28.

- Lamfalussy, A., 1953, La sidérurgie et la Communauté européenne du Charbon et de l'Acier, *Bulletin de l'Institut de Recherches Économiques et Sociales*, Tome XIX, No. 1: 233-256.
- Lamfalussy, A., 1954a, L'offre en période infra-courte, *Bulletin de l'Institut de Recherches Économiques et Sociales*, Tome XX, No. 1: 3-18.
- Lamfalussy, A., 1954b, Quelques aspects du développement de l'industrie de raffinage du pétrole en Belgique, *Bulletin de l'Institut de Recherches Économiques et Sociales*, Tome XX No. 1: 101-118.
- Lamfalussy, A., 1958, The Pattern of Growth in Belgian Manufacturing Industry, 1937-1956, *Journal of Industrial Economics*, Vol. 6, No. 2: 101-133.
- Lamfalussy, A., 1959a, Essai sur la croissance économique et la balance des paiements de la Belgique: 1948-1957, *Bulletin de l'Institut de Recherches Économiques et Sociales*, Vol. 25, No. 2: 43-74.
- Lamfalussy, A., 1959b, Réponse aux remarques critiques de M. Beauvois, *Bulletin de l'Institut de Recherches Économiques et Sociales*, Vol. 25, No. 6: 615-624.
- Lamfalussy, A., 1961a, *Investment and Growth in Mature Economies. The Case of Belgium*, London: Macmillan.
- Lamfalussy, A., 1961b, Europe's Progress: Due to Common Market?, *Lloyds Bank Review*, No. 62:1-16.
- Lamfalussy, A., 1963a, *The United Kingdom and the Six. An Essay on Economic Growth in Western Europe*, London: Macmillan.
- Lamfalussy, A., 1963b, Contribution à une théorie de la croissance en économie ouverte, *Recherches Économiques de Louvain*, Vol. 29, No. 8:715-734.
- Lamfalussy, A., 1963c, Intra-European Trade and the Competitive Position of the E.E.C., *Manchester Statistical Society*, Manchester: Norbury, Lockwood & Co. Ltd., pp. 1-19.
- Lamfalussy, A., 1989, Macro-coordination of fiscal policies in an economic and monetary union in Europe, Collection of Papers, *Committee for the Study of Economic and Monetary Union*, Luxembourg, 1989, pp. 91-125.
- Lamfalussy, A., 2006, Central banks, governments and the European monetary unification process, *BIS Working Paper*, No. 201, February 2006.
- Maes, I., 2002, On the Origins of the Franco-German EMU Controversies, Working Paper, Research Series, no 34, National Bank of Belgium, July 2002, 40 pp., published in *European Journal of Law and Economics*, Vol. 17, No. 1, January 2004, p. 21-39.
- Maes, I., 2006, The Ascent of the European Commission as an Actor in the Monetary Integration Process in the 1960s, *Scottish Journal of Political Economy*, Vol. 53, No. 2, pp. 222-241.
- Maes, I., 2007a, *Half a century of European financial integration. From the Rome Treaty to the 21st century*, Foreword by Ph. Maystadt, Brussels: Mercatorfonds.
- Maes, I., 2007b, The spread of Keynesian economics: a comparison of the Belgian and Italian experiences (1945-1970), Research Series, no 113, National Bank of Belgium, April 2007, pp. 24., published in *Journal of the History of Economic Thought*, Vol. 30, No. 2, pp. 491-509.
- Maes, I., Buyst, E. & Bouchet M., 2000, The Post-1945 Development of Economics in Belgium, Coats, A. W. (ed.), *The Development of Economics in Western Europe since 1945*, London: Routledge, p. 94-112.
- Maes, I. and Buyst, E. 2004, Triffin, the European Commission and the Project of a European Reserve Fund, in M. Dumoulin (ed.), *Réseaux Économiques et Construction Européenne*, P.I.E. - Peter Lang, pp. 431-444.
- Maes, I. & Buyst, E., 2005, Migration and Americanization: the Special Case of Belgian Economics, *European Journal of the History of Economic Thought*, Vol. 12, No 1, pp. 73-88.
- Maes, I. and L. Quaglia, 2003, The Process of European Monetary Integration: A Comparison of the Belgian and Italian Approaches, Working Paper, Research Series, no 40, National Bank of Belgium, August 2003, 38 pp., published in *BNL Quarterly Review*, no 227, Dec. 2003, p. 299-335.

- Mandy, P., 2005, L'héritage de Léon-H. Dupriez: un survol, *Reflets et Perspectives*, Vol XLIV, No 1, pp. 11-30.
- Makower, J., 1963, Review of The United Kingdom and the Six. An Essay on Economic Growth in Western Europe, *Economic Journal*, Vol. 73, No. 292, pp. 705-706.
- Mishan, 1963, Review of The United Kingdom and the Six. An Essay on Economic Growth in Western Europe, *Economica*, Vol. 30, No. 2, pp. 436-438.
- Moitroux, J.-M., 1995, *Een bank in de Geschiedenis*, Brussel: BBL.
- National Bank of Belgium, 1980-1981, Het verlies aan levenskracht van de Belgische economie in het voorbije decennium, *Tijdschrift van de Nationale Bank van België*, LV^e jaargang, september 1980, blz 3-42, november 1980, blz. 3-149, LVI^e jaargang, mei-juni-juli 1981, blz. 3-87.
- Persoons F., 1975, Les Economistes, *La Relève*, Vol. 31, No. 48, 29 November, pp. 11-12.
- Rey, G. M., 1982, Italy, A. Boltho (ed.), *The European Economy: Growth and Crisis*, Oxford: O.U.P., pp. 502-527.
- Rossi, N. & G. Toniolo, 1996, Italy, N. Crafts & G. Toniolo (eds.), *Economic growth in Europe since 1945*, Cambridge: C.U.P., pp. 427-454.
- Rousseaux, P., 1938, *Les mouvements de fond de l'économie anglaise 1800-1913*, Bruxelles: Ed. Universelle.
- Thirlwall, A. P., 1979, The Balance of Payments Constraint as an Explanation of International Growth Rate Differences, *Banca Nazionale del Lavoro Quarterly Review*, No. 128: 45-53.
- Triffin R., 1957, *Europe and the Money Muddle: from Bilateralism to Near-Convertibility, 1947-1956*, New Haven: Yale University Press.
- Triffin R., 1958, La monnaie et le Marché Commun - Politiques nationales et intégration régionale, *Cahiers de l'Institut de Sciences Economiques Appliquées*, No 74, December 1958, p. 1-17.
- Van der Wee, H, 1985, De Belgische economie in de maalstroom van een halve eeuw 1925-1985, *Gaston Eyskens 80*, Tielt: Lannoo.
- Van der Wee, H., (1986), *Prosperity and Upheaval. The World Economy 1945-1980*, Harmondsworth: Viking.
- Van Rijckeghem, W., 1982, Benelux, A. Boltho (ed.), *The European Economy: Growth and Crisis*, Oxford: O.U.P., pp. 581-609.

NATIONAL BANK OF BELGIUM - WORKING PAPERS SERIES

1. "Model-based inflation forecasts and monetary policy rules" by M. Dombrecht and R. Wouters, *Research Series*, February 2000.
2. "The use of robust estimators as measures of core inflation" by L. Aucremanne, *Research Series*, February 2000.
3. "Performances économiques des Etats-Unis dans les années nonante" by A. Nyssens, P. Butzen, P. Bisciari, *Document Series*, March 2000.
4. "A model with explicit expectations for Belgium" by P. Jeanfils, *Research Series*, March 2000.
5. "Growth in an open economy: some recent developments" by S. Turnovsky, *Research Series*, May 2000.
6. "Knowledge, technology and economic growth: an OECD perspective" by I. Visco, A. Bassanini, S. Scarpetta, *Research Series*, May 2000.
7. "Fiscal policy and growth in the context of European integration" by P. Masson, *Research Series*, May 2000.
8. "Economic growth and the labour market: Europe's challenge" by C. Wyplosz, *Research Series*, May 2000.
9. "The role of the exchange rate in economic growth: a euro-zone perspective" by R. MacDonald, *Research Series*, May 2000.
10. "Monetary union and economic growth" by J. Vickers, *Research Series*, May 2000.
11. "Politique monétaire et prix des actifs: le cas des Etats-Unis" by Q. Wibaut, *Document Series*, August 2000.
12. "The Belgian industrial confidence indicator: leading indicator of economic activity in the euro area?" by J.-J. Vanhaelen, L. Dresse, J. De Mulder, *Document Series*, November 2000.
13. "Le financement des entreprises par capital-risque" by C. Rigo, *Document Series*, February 2001.
14. "La nouvelle économie" by P. Bisciari, *Document Series*, March 2001.
15. "De kostprijs van bankkredieten" by A. Bruggeman and R. Wouters, *Document Series*, April 2001.
16. "A guided tour of the world of rational expectations models and optimal policies" by Ph. Jeanfils, *Research Series*, May 2001.
17. "Attractive Prices and Euro - Rounding effects on inflation" by L. Aucremanne and D. Cornille, *Documents Series*, November 2001.
18. "The interest rate and credit channels in Belgium: an investigation with micro-level firm data" by P. Butzen, C. Fuss and Ph. Vermeulen, *Research series*, December 2001.
19. "Openness, imperfect exchange rate pass-through and monetary policy" by F. Smets and R. Wouters, *Research series*, March 2002.
20. "Inflation, relative prices and nominal rigidities" by L. Aucremanne, G. Brys, M. Hubert, P. J. Rousseeuw and A. Struyf, *Research series*, April 2002.
21. "Lifting the burden: fundamental tax reform and economic growth" by D. Jorgenson, *Research series*, May 2002.
22. "What do we know about investment under uncertainty?" by L. Trigeorgis, *Research series*, May 2002.
23. "Investment, uncertainty and irreversibility: evidence from Belgian accounting data" by D. Cassimon, P.-J. Engelen, H. Meersman, M. Van Wouwe, *Research series*, May 2002.
24. "The impact of uncertainty on investment plans" by P. Butzen, C. Fuss, Ph. Vermeulen, *Research series*, May 2002.
25. "Investment, protection, ownership, and the cost of capital" by Ch. P. Himmelberg, R. G. Hubbard, I. Love, *Research series*, May 2002.
26. "Finance, uncertainty and investment: assessing the gains and losses of a generalised non-linear structural approach using Belgian panel data", by M. Gérard, F. Verschueren, *Research series*, May 2002.
27. "Capital structure, firm liquidity and growth" by R. Anderson, *Research series*, May 2002.
28. "Structural modelling of investment and financial constraints: where do we stand?" by J.- B. Chatelain, *Research series*, May 2002.
29. "Financing and investment interdependencies in unquoted Belgian companies: the role of venture capital" by S. Manigart, K. Baeyens, I. Verschueren, *Research series*, May 2002.
30. "Development path and capital structure of Belgian biotechnology firms" by V. Bastin, A. Corhay, G. Hübner, P.-A. Michel, *Research series*, May 2002.
31. "Governance as a source of managerial discipline" by J. Franks, *Research series*, May 2002.

32. "Financing constraints, fixed capital and R&D investment decisions of Belgian firms" by M. Cincera, *Research series*, May 2002.
33. "Investment, R&D and liquidity constraints: a corporate governance approach to the Belgian evidence" by P. Van Cayseele, *Research series*, May 2002.
34. "On the Origins of the Franco-German EMU Controversies" by I. Maes, *Research series*, July 2002.
35. "An estimated dynamic stochastic general equilibrium model of the Euro Area", by F. Smets and R. Wouters, *Research series*, October 2002.
36. "The labour market and fiscal impact of labour tax reductions: The case of reduction of employers' social security contributions under a wage norm regime with automatic price indexing of wages", by K. Burggraeve and Ph. Du Caju, *Research series*, March 2003.
37. "Scope of asymmetries in the Euro Area", by S. Ide and Ph. Moës, *Document series*, March 2003.
38. "De autonijverheid in België: Het belang van het toeleveringsnetwerk rond de assemblage van personenauto's", by F. Coppens and G. van Gastel, *Document series*, June 2003.
39. "La consommation privée en Belgique", by B. Eugène, Ph. Jeanfils and B. Robert, *Document series*, June 2003.
40. "The process of European monetary integration: a comparison of the Belgian and Italian approaches", by I. Maes and L. Quaglia, *Research series*, August 2003.
41. "Stock market valuation in the United States", by P. Bisciari, A. Durré and A. Nyssens, *Document series*, November 2003.
42. "Modeling the Term Structure of Interest Rates: Where Do We Stand?", by K. Maes, *Research series*, February 2004.
43. "Interbank Exposures: An Empirical Examination of System Risk in the Belgian Banking System", by H. Degryse and G. Nguyen, *Research series*, March 2004.
44. "How Frequently do Prices change? Evidence Based on the Micro Data Underlying the Belgian CPI", by L. Aucremanne and E. Dhyne, *Research series*, April 2004.
45. "Firms' investment decisions in response to demand and price uncertainty", by C. Fuss and Ph. Vermeulen, *Research series*, April 2004.
46. "SMEs and Bank Lending Relationships: the Impact of Mergers", by H. Degryse, N. Masschelein and J. Mitchell, *Research series*, May 2004.
47. "The Determinants of Pass-Through of Market Conditions to Bank Retail Interest Rates in Belgium", by F. De Graeve, O. De Jonghe and R. Vander Vennet, *Research series*, May 2004.
48. "Sectoral vs. country diversification benefits and downside risk", by M. Emir, *Research series*, May 2004.
49. "How does liquidity react to stress periods in a limit order market?", by H. Beltran, A. Durré and P. Giot, *Research series*, May 2004.
50. "Financial consolidation and liquidity: prudential regulation and/or competition policy?", by P. Van Cayseele, *Research series*, May 2004.
51. "Basel II and Operational Risk: Implications for risk measurement and management in the financial sector", by A. Chapelle, Y. Crama, G. Hübner and J.-P. Peters, *Research series*, May 2004.
52. "The Efficiency and Stability of Banks and Markets", by F. Allen, *Research series*, May 2004.
53. "Does Financial Liberalization Spur Growth?" by G. Bekaert, C.R. Harvey and C. Lundblad, *Research series*, May 2004.
54. "Regulating Financial Conglomerates", by X. Freixas, G. Lóránth, A.D. Morrison and H.S. Shin, *Research series*, May 2004.
55. "Liquidity and Financial Market Stability", by M. O'Hara, *Research series*, May 2004.
56. "Economisch belang van de Vlaamse zeehavens: verslag 2002", by F. Lagneaux, *Document series*, June 2004.
57. "Determinants of Euro Term Structure of Credit Spreads", by A. Van Landschoot, *Research series*, July 2004.
58. "Macroeconomic and Monetary Policy-Making at the European Commission, from the Rome Treaties to the Hague Summit", by I. Maes, *Research series*, July 2004.
59. "Liberalisation of Network Industries: Is Electricity an Exception to the Rule?", by F. Coppens and D. Vivet, *Document series*, September 2004.
60. "Forecasting with a Bayesian DSGE model: an application to the euro area", by F. Smets and R. Wouters, *Research series*, September 2004.
61. "Comparing shocks and frictions in US and Euro Area Business Cycle: a Bayesian DSGE approach", by F. Smets and R. Wouters, *Research series*, October 2004.

62. "Voting on Pensions: A Survey", by G. de Walque, *Research series*, October 2004.
63. "Asymmetric Growth and Inflation Developments in the Acceding Countries: A New Assessment", by S. Ide and P. Moës, *Research series*, October 2004.
64. "Importance économique du Port Autonome de Liège: rapport 2002", by F. Lagneaux, *Document series*, November 2004.
65. "Price-setting behaviour in Belgium: what can be learned from an ad hoc survey", by L. Aucremanne and M. Druant, *Research series*, March 2005.
66. "Time-dependent versus State-dependent Pricing: A Panel Data Approach to the Determinants of Belgian Consumer Price Changes", by L. Aucremanne and E. Dhyne, *Research series*, April 2005.
67. "Indirect effects – A formal definition and degrees of dependency as an alternative to technical coefficients", by F. Coppens, *Research series*, May 2005.
68. "Noname – A new quarterly model for Belgium", by Ph. Jeanfils and K. Burggraeve, *Research series*, May 2005.
69. "Economic importance of the Flemish maritime ports: report 2003", F. Lagneaux, *Document series*, May 2005.
70. "Measuring inflation persistence: a structural time series approach", M. Dossche and G. Everaert, *Research series*, June 2005.
71. "Financial intermediation theory and implications for the sources of value in structured finance markets", J. Mitchell, *Document series*, July 2005.
72. "Liquidity risk in securities settlement", J. Devriese and J. Mitchell, *Research series*, July 2005.
73. "An international analysis of earnings, stock prices and bond yields", A. Durré and P. Giot, *Research series*, September 2005.
74. "Price setting in the euro area: Some stylized facts from Individual Consumer Price Data", E. Dhyne, L. J. Álvarez, H. Le Bihan, G. Veronese, D. Dias, J. Hoffmann, N. Jonker, P. Lünemann, F. Rumler and J. Vilmunen, *Research series*, September 2005.
75. "Importance économique du Port Autonome de Liège: rapport 2003", by F. Lagneaux, *Document series*, October 2005.
76. "The pricing behaviour of firms in the euro area: new survey evidence, by S. Fabiani, M. Druant, I. Hernando, C. Kwapil, B. Landau, C. Loupias, F. Martins, T. Mathä, R. Sabbatini, H. Stahl and A. Stokman, *Research series*, November 2005.
77. "Income uncertainty and aggregate consumption, by L. Pozzi, *Research series*, November 2005.
78. "Crédits aux particuliers - Analyse des données de la Centrale des Crédits aux Particuliers", by H. De Doncker, *Document series*, January 2006.
79. "Is there a difference between solicited and unsolicited bank ratings and, if so, why?" by P. Van Roy, *Research series*, February 2006.
80. "A generalised dynamic factor model for the Belgian economy - Useful business cycle indicators and GDP growth forecasts", by Ch. Van Nieuwenhuyze, *Research series*, February 2006.
81. "Réduction linéaire de cotisations patronales à la sécurité sociale et financement alternatif" by Ph. Jeanfils, L. Van Meensel, Ph. Du Caju, Y. Saks, K. Buysse and K. Van Cauter, *Document series*, March 2006.
82. "The patterns and determinants of price setting in the Belgian industry" by D. Cornille and M. Dossche, *Research series*, May 2006.
83. "A multi-factor model for the valuation and risk management of demand deposits" by H. Dewachter, M. Lyrio and K. Maes, *Research series*, May 2006.
84. "The single European electricity market: A long road to convergence", by F. Coppens and D. Vivet, *Document series*, May 2006.
85. "Firm-specific production factors in a DSGE model with Taylor price setting", by G. de Walque, F. Smets and R. Wouters, *Research series*, June 2006.
86. "Economic importance of the Belgian ports: Flemish maritime ports and Liège port complex - report 2004", by F. Lagneaux, *Document series*, June 2006.
87. "The response of firms' investment and financing to adverse cash flow shocks: the role of bank relationships", by C. Fuss and Ph. Vermeulen, *Research series*, July 2006.
88. "The term structure of interest rates in a DSGE model", by M. Emiris, *Research series*, July 2006.
89. "The production function approach to the Belgian output gap, Estimation of a Multivariate Structural Time Series Model", by Ph. Moës, *Research series*, September 2006.
90. "Industry Wage Differentials, Unobserved Ability, and Rent-Sharing: Evidence from Matched Worker-Firm Data, 1995-2002", by R. Plasman, F. Rycx and I. Tojerow, *Research series*, October 2006.

91. "The dynamics of trade and competition", by N. Chen, J. Imbs and A. Scott, *Research series*, October 2006.
92. "A New Keynesian Model with Unemployment", by O. Blanchard and J. Gali, *Research series*, October 2006.
93. "Price and Wage Setting in an Integrating Europe: Firm Level Evidence", by F. Abraham, J. Konings and S. Vanormelingen, *Research series*, October 2006.
94. "Simulation, estimation and welfare implications of monetary policies in a 3-country NOEM model", by J. Plasmans, T. Michalak and J. Fornero, *Research series*, October 2006.
95. "Inflation persistence and price-setting behaviour in the euro area: a summary of the Inflation Persistence Network evidence ", by F. Altissimo, M. Ehrmann and F. Smets, *Research series*, October 2006.
96. "How Wages Change: Micro Evidence from the International Wage Flexibility Project", by W.T. Dickens, L. Goette, E.L. Goshen, S. Holden, J. Messina, M.E. Schweitzer, J. Turunen and M. Ward, *Research series*, October 2006.
97. "Nominal wage rigidities in a new Keynesian model with frictional unemployment", by V. Bodart, G. de Walque, O. Pierrard, H.R. Sneessens and R. Wouters, *Research series*, October 2006.
98. "Dynamics on monetary policy in a fair wage model of the business cycle", by D. De la Croix, G. de Walque and R. Wouters, *Research series*, October 2006.
99. "The kinked demand curve and price rigidity: evidence from scanner data", by M. Dossche, F. Heylen and D. Van den Poel, *Research series*, October 2006.
100. "Lumpy price adjustments: a microeconomic analysis", by E. Dhyne, C. Fuss, H. Peseran and P. Sevestre, *Research series*, October 2006.
101. "Reasons for wage rigidity in Germany", by W. Franz and F. Pfeiffer, *Research series*, October 2006.
102. "Fiscal sustainability indicators and policy design in the face of ageing", by G. Langenus, *Research series*, October 2006.
103. "Macroeconomic fluctuations and firm entry: theory and evidence", by V. Lewis, *Research series*, October 2006.
104. "Exploring the CDS-Bond Basis" by J. De Wit, *Research series*, November 2006.
105. "Sector Concentration in Loan Portfolios and Economic Capital", by K. Düllmann and N. Masschelein, *Research series*, November 2006.
106. "R&D in the Belgian Pharmaceutical Sector", by H. De Doncker, *Document series*, December 2006.
107. "Importance et évolution des investissements directs en Belgique", by Ch. Piette, *Document series*, January 2007.
108. "Investment-Specific Technology Shocks and Labor Market Frictions", by R. De Bock, *Research series*, February 2007.
109. "Shocks and frictions in US Business cycles: a Bayesian DSGE Approach", by F. Smets and R. Wouters, *Research series*, February 2007.
110. "Economic impact of port activity: a disaggregate analysis. The case of Antwerp", by F. Coppens, F. Lagneaux, H. Meersman, N. Sellekaerts, E. Van de Voorde, G. van Gastel, Th. Vanellander, A. Verhetsel, *Document series*, February 2007.
111. "Price setting in the euro area: some stylised facts from individual producer price data", by Ph. Vermeulen, D. Dias, M. Dossche, E. Gautier, I. Hernando, R. Sabbatini, H. Stahl, *Research series*, March 2007.
112. "Assessing the Gap between Observed and Perceived Inflation in the Euro Area: Is the Credibility of the HICP at Stake?", by L. Aucremanne, M. Collin, Th. Stragier, *Research series*, April 2007.
113. "The spread of Keynesian economics: a comparison of the Belgian and Italian experiences", by I. Maes, *Research series*, April 2007.
114. "Imports and Exports at the Level of the Firm: Evidence from Belgium", by M. Muûls and M. Pisu, *Research series*, May 2007.
115. "Economic importance of the Belgian ports: Flemish maritime ports and Liège port complex - report 2005", by F. Lagneaux, *Document series*, May 2007.
116. "Temporal Distribution of Price Changes: Staggering in the Large and Synchronization in the Small", by E. Dhyne and J. Konieczny, *Research series*, June 2007.
117. "Can excess liquidity signal an asset price boom?", by A. Bruggeman, *Research series*, August 2007.
118. "The performance of credit rating systems in the assessment of collateral used in Eurosystem monetary policy operations", by F. Coppens, F. González and G. Winkler, *Research series*, September 2007.
119. "The determinants of stock and bond return comovements", by L. Baele, G. Bekaert and K. Inghelbrecht, *Research series*, October 2007.

120. "Monitoring pro-cyclicality under the capital requirements directive: preliminary concepts for developing a framework", by N. Masschelein, *Document series*, October 2007.
121. "Dynamic order submission strategies with competition between a dealer market and a crossing network", by H. Degryse, M. Van Achter and G. Wuyts, *Research series*, November 2007.
122. "The gas chain: influence of its specificities on the liberalisation process", by C. Swartenbroekx, *Document series*, November 2007.
123. "Failure prediction models: performance, disagreements, and internal rating systems", by J. Mitchell and P. Van Roy, *Research series*, December 2007.
124. "Downward wage rigidity for different workers and firms: an evaluation for Belgium using the IWF procedure", by Ph. Du Caju, C. Fuss and L. Wintr, *Research series*, December 2007.
125. "Economic importance of Belgian transport logistics", by F. Lagneaux, *Document series*, January 2008.
126. "Some evidence on late bidding in eBay auctions", by L. Wintr, *Research series*, January 2008.
127. "How do firms adjust their wage bill in Belgium? A decomposition along the intensive and extensive margins", by C. Fuss, *Research series*, January 2008.
128. "Exports and productivity – comparable evidence for 14 countries", by The International Study Group on Exports and Productivity, *Research series*, February 2008.
129. "Estimation of monetary policy preferences in a forward-looking model: a Bayesian approach", by P. Ilbas, *Research series*, March 2008.
130. "Job creation, job destruction and firms' international trade involvement", by M. Pisu, *Research series*, March 2008.
131. "Do survey indicators let us see the business cycle? A frequency decomposition", by L. Dresse and Ch. Van Nieuwenhuyze, *Research series*, March 2008.
132. "Searching for additional sources of inflation persistence: the micro-price panel data approach", by R. Raciborski, *Research series*, April 2008.
133. "Short-term forecasting of GDP using large monthly datasets - A pseudo real-time forecast evaluation exercise", by K. Barhoumi, S. Benk, R. Cristadoro, A. Den Reijer, A. Jakaitiene, P. Jelonek, A. Rua, G. Rünstler, K. Ruth and Ch. Van Nieuwenhuyze, *Research series*, June 2008.
134. "Economic importance of the Belgian ports: Flemish maritime ports, Liège port complex and the port of Brussels - report 2006" by S. Vennix, *Document series*, June 2008.
135. "Imperfect exchange rate pass-through: the role of distribution services and variable demand elasticity", by Ph. Jeanfils, *Research series*, August 2008.
136. "Multivariate structural time series models with dual cycles: Implications for measurement of output gap and potential growth", by Ph. Moës, *Research series*, August 2008.
137. "Agency problems in structured finance - a case study of European CLOs", by J. Keller, *Document series*, August 2008.
138. "The efficiency frontier as a method for gauging the performance of public expenditure: a Belgian case study", by B. Eugène, *Research series*, September 2008.
139. "Exporters and credit constraints. A firm-level approach", by M. Muûls, *Research series*, September 2008.
140. "Export destinations and learning-by-exporting: Evidence from Belgium", by M. Pisu, *Research series*, September 2008.
141. "Monetary aggregates and liquidity in a neo-Wicksellian framework", by M. Canzoneri, R. Cumby, B. Diba and D. López-Salido, *Research series*, October 2008.
142. "Liquidity, inflation and asset prices in a time-varying framework for the euro area, by Ch. Baumeister, E. Durinck and G. Peersman, *Research series*, October 2008.
143. "The bond premium in a DSGE model with long-run real and nominal risks", by Glenn D. Rudebusch and Eric T. Swanson, *Research series*, October 2008.
144. "Imperfect information, macroeconomic dynamics and the yield curve: an encompassing macro-finance model", by H. Dewachter, *Research series*, October 2008.
145. "Housing market spillovers: evidence from an estimated DSGE model", by M. Iacoviello and S. Neri, *Research series*, October 2008.
146. "Credit frictions and optimal monetary policy", by V. Cúrdia and M. Woodford, *Research series*, October 2008.
147. "Central Bank misperceptions and the role of money in interest rate rules", by G. Beck and V. Wieland, *Research series*, October 2008.
148. "Financial (in)stability, supervision and liquidity injections: a dynamic general equilibrium approach", by G. de Walque, O. Pierrard and A. Rouabah, *Research series*, October 2008.

149. "Monetary policy, asset prices and macroeconomic conditions: a panel-VAR study", by K. Assenmacher-Wesche and S. Gerlach, *Research series*, October 2008.
150. "Risk premiums and macroeconomic dynamics in a heterogeneous agent model", by F. De Graeve, M. Dossche, M. Emiris, H. Sneessens and R. Wouters, *Research series*, October 2008.
151. "Financial factors in economic fluctuations", by L. J. Christiano, R. Motto and M. Rotagno, *Research series*, to be published.
152. "Rent-sharing under different bargaining regimes: Evidence from linked employer-employee data", by M. Rusinek and F. Rycx, *Research series*, December 2008.
153. "Forecast with judgment and models", by F. Monti, *Research series*, December 2008.
154. "Institutional features of wage bargaining in 23 European countries, the US and Japan", by Ph. Du Caju, E. Gautier, D. Momferatou and M. Ward-Warmedinger, *Research series*, December 2008.
155. "Fiscal sustainability and policy implications for the euro area", by F. Balassone, J. Cunha, G. Langenus, B. Manzke, J. Pavot, D. Prammer and P. Tommasino, *Research series*, January 2009.
156. "Understanding sectoral differences in downward real wage rigidity: workforce composition, institutions, technology and competition", by Ph. Du Caju, C. Fuss and L. Wintr, *Research series*, February 2009.
157. "Sequential bargaining in a New Keynesian model with frictional unemployment and staggered wage negotiation", by G. de Walque, O. Pierrard, H. Sneessens and R. Wouters, *Research series*, February 2009.
158. "Economic Importance of Air Transport and Airport Activities in Belgium", by F. Kupfer and F. Lagneaux, *Document series*, March 2009.
159. "Rigid labour compensation and flexible employment? Firm-Level evidence with regard to productivity for Belgium", by C. Fuss and L. Wintr, *Research series*, March 2009.
160. "The Belgian Iron and Steel Industry in the International Context", by F. Lagneaux and D. Vivet, *Document series*, March 2009.
161. "Trade, wages and productivity", by K. Behrens, G. Mion, Y. Murata and J. Südekum, *Research series*, March 2009.
162. "Labour flows in Belgium", by P. Heuse and Y. Saks, *Research series*, April 2009.
163. "The young Lamfalussy: an empirical and policy-oriented growth theorist", by I. Maes, *Research series*, April 2009.