1. INTRODUCTION

The objective of this doctoral thesis is modelling the Spanish economy in a small macroeconometric model. The model serves three purposes: economic analysis, policy simulations and short term forecasting. Originally it was developed as the Spanish module of the DIW Berlin's European Business Cycle Model.

The 27 behavioural equations are largely estimated as error-correction equations. Most of them consist of a long term equilibrium relationship based on economic theory and short term dynamics and thus model a dynamic adjustment process in the case of deviations from the long term steady state. The data base of the model is taken from the quarterly national accounts. In some cases, where only annual data are available, a method of temporal disaggregation is applied. Exports of goods are disaggregated further than in the national accounts.

As Spain is only a medium-size economy, which is not a member of the G7, there are fewer models of the Spanish economy than for the three largest euro area economies, Germany, France and Italy.

The most important models are the Spanish blocks of the following multi-country models:

- NIGEM (National Institute of Social and Economic Research)
- ESCB-Multi-Country Model (European System of Central Banks)
- Quest II (European Commission)
- Interlink(OECD)

In addition the model of Wharton University and Universidad Autónoma de Madrid (Wharton-UAM-Model) can be cited, but it is based on annual data and much more

detailed than the model presented here. The Spanish Ministry of the Economy has its own model ("MOISEES"), which is mainly used for the government sector. To the best of my knowledge[1] a documentation of its current specifications is not available to the public.

In some respects the models mentioned above differ significantly from the model presented here. Some of them use calibrated rather than estimated coefficients. They are based on seasonally adjusted quarterly data, semi-annual or annual data. Only a minority disaggregate exports.
The model described in this thesis is characterised by the following features:

- The exports are disaggregated according to the main trading partners of Spain. Four destinations are distinguished: the euro area, the rest of the EU-15, the United States of America and the rest of the world. As the national accounts data base does not offer such details, the series were constructed with the help of trade statistics.

- As far as possible[2] the model uses raw (i.e. seasonally unadjusted) data. This helps to avoid distortions due to the filters of seasonal adjustment methods. At the same time structural breaks can be detected more easily.

- The emphasis is put on the data properties. No parameter restrictions are imposed. No calibrated coefficients appear in the equations.

The model can thus be considered an independent, innovative approach to modelling the Spanish economy. Although the disaggregated estimation of exports is the main innovation in the model, an additional focus is on the wage-price dynamics and private consumption expenditure. This should help to explain the most striking features of the Spanish economy: a robust domestic demand in combination with high wage increases, while productivity growth remains weak and unemployment is high.

The structure of this doctoral thesis is as follows. The first chapter introduces the reader to the idiosyncracies of the Spanish economy. It describes the recent economic

[1] Several e-mail messages were written to the Ministry requesting further information.

[2] Seasonally adjusted demand series have to be used for modelling Spanish exports to the US, as the American statistics do not offer raw data.

development as well as institutional arrangements. Chapter 3 is devoted to the data base and its statistical properties. Special attention is paid to structural breaks in the data, which are numerous. Chapter 4 is the core of this work. It describes the model philosophy and structure and provides a detailed documentation of the individual behavioural equations as well as their theoretical basis. Chapter 5 analyses the results of some standard shock simulations. The main findings are summarised in the final conclusions. More detailed information can be found in the appendix. Appendix A provides a complete list of the variables used, graphs of all variables, which appear in the behavioural equations (except for deterministics) and a detailed description of data construction and unit root tests. Appendix B complements Chapter 4 with an explanation of error-correction and cointegration methods, a documentation of specification test methods, additional test results, definitions in the model as well as the results of extensive testing for cointegration in the case of the consumption function.