

Economic Forecasting

Nicolas Carnot • Vincent Koen • Bruno Tissot



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Nicolas Carnot

Vincent Koen

and

Bruno Tissot

1999

2000

2001

2002

2003

2004

2005

2006

2007

2008

palgrave
macmillan



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Foreword

While macroeconomic and economic policy handbooks abound, they rarely dwell on the important question of economic forecasting. Many even bypass it altogether. Yet, scores of economists, both in the private and in the public sector, spend their working days constructing forecasts, and worry at night whether they got them right. The techniques they use blend traditional macroeconomic analysis, statistical and econometric tools, microeconomic insights and a fair dose of eclectic judgement. Granted, some of them are described in journal articles but few if any books pull these various strands of knowledge and expertise together in a comprehensive survey. Bruno, Nicolas and Vincent aptly fill the void, drawing on their experience built up first-hand, in particular at the International Monetary Fund, the Bank for International Settlements and the Organisation for Economic Co-operation and Development.

Economic Forecasting is accessible to anyone with a general background in economics, yet nuanced and state-of-the-art. It provides the complete toolkit needed by forecasters, with clear presentations of the technicalities and numerous up-to-date real-life exhibits. It covers a broad set of areas, including national accounting, business cycle analysis, macroeconomic model-building and usage, long-term projections and fiscal forecasting.

But this book also steps back from the nitty-gritty of day-to-day forecasting cuisine to put things in perspective. It sets out the theoretical underpinnings of forecasting models. It vividly shows how forecasts feed into policy-making or private agents' decisions. It discusses forecasting (in)accuracy, convincingly arguing that forecasts are essential even if forecasters are almost inevitably bound to be off the mark. It candidly points out the shortcomings of the existing analytical frameworks and gives readers a glimpse of forthcoming developments on the frontier of national accounting, economic analysis and forecasting. Last but not least, it offers a unique round-the-world tour of the institutions producing forecasts – a precious roadmap for what has become a crowded jungle.

A preliminary version of this book was first published in French in 2002 and received the prize of the best economic policy book from the French Academy of Moral and Political Sciences. I trust that the English version, which adopts a more global perspective and incorporates relevant recent developments, will be equally successful and will rapidly become popular with students, academics and practitioners alike.

JEAN-PHILIPPE COTIS
OECD Chief Economist

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While grateful for all the wisdom and backing, we take full responsibility for the views expressed in this book as well as for any residual shortcomings, which should not be ascribed to the aforementioned institutions or individuals.

NICOLAS CARNOT
VINCENT KOEN
BRUNO TISSOT

Acronyms

ADB	African Development Bank
ADB	Asian Development Bank
AGE	applied general equilibrium (model)
AIDS	acquired immune deficiency syndrome
AR	auto-regressive
ARIMA	auto-regressive integrated moving average
ARMA	auto-regressive moving average
BEA	Bureau of Economic Analysis (United States)
BEER	behavioural equilibrium exchange rate
BIPE	Bureau d'Informations et de Prévisions Économiques (France)
BIS	Bank for International Settlements
BLS	Bureau of Labor Statistics (United States)
CAE	Conseil d'Analyse Économique (France)
CBI	Confederation of British Industry (United Kingdom)
CBO	Congressional Budget Office (United States)
CEA	Council of Economic Advisors (United States)
CEPII	Centre d'Études Prospectives et d'Informations Internationales (France)
CEPR	Centre for Economic Policy Research (Europe)
CES	constant elasticity of substitution
CGE	computable general equilibrium (model)
c.i.f.	cost of insurance and freight
CLI	composite leading indicator
CPB	Central Planning Bureau (Netherlands, renamed Bureau for Economic Policy Analysis)
CPI	consumer price index
DEER	desired equilibrium exchange rate
DGTPE	Direction Générale du Trésor et de la Politique Économique (France)
DIR	Daiwa Institute of Research (Japan)
DIW	Deutsche Institut für Wirtschaftsforschung (Berlin)
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECB	European Central Bank
ECM	error-correction model
ECOFIN	Economic and Financial Affairs Council (European Union)
ECRI	Economic Cycle Research Institute
ESA	European System of Accounts
ESRI	Economic and Social Research Institute (Ireland)
ESRI	Economic and Social Research Institute (Japan)
ETLA	Research Institute of the Finnish Economy (Finland)
EU	European Union

FDI	foreign direct investment
FEER	fundamental equilibrium exchange rate
f.o.b.	free on board
FOMC	Federal Open Market Committee (United States)
FY	fiscal year
GDP	gross domestic product
GNI	gross national income
GNP	gross national product
HDI	human development index
HICP	harmonised index of consumer prices
HP	Hodrick-Prescott (filter)
HPI	human poverty index
HWWA	Hamburgische Welt-Wirtschafts-Archiv (Hamburg)
IADB	Interamerican Development Bank
IBRD	International Bank for Reconstruction and Development
ICSID	International Centre for Settlement of Investment Disputes
IDA	International Development Association
IEA	International Energy Agency
IFC	International Finance Corporation
IFL	Instituto Flores de Lemus (Madrid University)
IFO	Institut für Wirtschaftsforschung (Munich)
IFS	Institut for Fiscal Studies (London)
IfW	Institut für Weltwirtschaft (Kiel)
IGIER	Innocenzo Gasparini Institute for Economic Research (Bocconi University)
ILO	International Labour Organisation
IMF	International Monetary Fund
INSEE	Institut National de la Statistique et des Études Économiques (France)
IRR	internal rate of return
ISAE	Istituto di Studi e Analisi Economica (Italy)
ISIC	International Standard Industrial Classification
ISM	Institute for Supply Management (United States)
ISTAT	Istituto Nazionale di Statistica (Italy)
IVCCA	inventory valuation and capital consumption adjustments
IWH	Institut für Wirtschaftsforschung (Halle)
JCER	Japan Center for Economic Research
LFS	Labour Force Survey
MA	moving average
MAE	mean absolute error
MCI	monetary conditions index
METI	Ministry of Economy, Trade and Industry (Japan)
MFCI	monetary and financial conditions index
MIGA	Multilateral Investment Guarantee Agency
MPC	Monetary Policy Committee
MSE	mean square error
NACE	Statistical Classification of Economic Activities in the European Community

NAICS	North American Industry Classification System
NAIRU	non-accelerating inflation rate of unemployment
NAPM	National Association of Purchasing Management (United States)
NATREX	natural real exchange rate
NBER	National Bureau of Economic Research
NDP	net domestic product
NIESR	National Institute of Economic and Social Research (United Kingdom)
NIPA	National Income and Product Accounts
NPI	non-profit institutions
NPISH	non-profit institutions serving households
NPV	net present value
OECD	Organisation for Economic Co-operation and Development
OEEC	Organisation for European Economic Co-operation (now OECD)
OEF	Oxford Economic Forecasting
OFCE	Observatoire Français des Conjonctures Économiques (France)
OLS	ordinary least squares
OMB	Office of Management and Budget (United States)
ONS	Office for National Statistics (United Kingdom)
OPEC	Organisation of the Petroleum Exporting Countries
PEER	permanent equilibrium exchange rate
PER	price–earnings ratio
PMI	purchasing managers' index
PPP	purchasing power parity
RBNZ	Reserve Bank of New Zealand
R&D	research and development
RMSE	root mean square error
RPI	retail price index
RPIX	retail price index excluding mortgage interest payments
RWI	Rheinisch-Westfälisches Institut für Wirtschaftsforschung (Essen)
SARS	severe acute respiratory syndrome
SEATS	signal extraction in ARIMA time series
SEEA	integrated environmental and economic accounting
SNA	system of national accounts
STAR	smooth transition auto-regressive (model)
TFP	total factor productivity
UIP	uncovered interest parity
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
VAR	vector auto-regressive (model)
VAT	value-added tax
VECM	vector error-correction model
WEO	<i>World Economic Outlook</i> (IMF)
WIFO	Österreichisches Institut für Wirtschaftsforschung (Austria)
WTO	World Trade Organisation

Introduction

All human errors are impatience, a premature breaking off of methodical procedure, an apparent fencing-in of what is apparently at issue.

F. Kafka

Man approaches the unattainable truth through a succession of errors.

A. Huxley

In recent decades, economic forecasting has taken on an increasingly important role. Expected future economic developments are discussed daily, both in specialised fora and more broadly. News carrying risks for the economic outlook can send financial markets into jitters at any time. Hence, an articulated assessment of economic prospects is now widely seen as an indispensable ingredient in economic policy-making, as well as for private-sector decisions. To cope with uncertainty and anticipate the implications of their behaviour, nearly every agent or collective entity has to rely on some description of how the economy is likely to evolve, that is, on an economic forecast.

What is economic forecasting?

This book focuses mainly on the forecasting of macroeconomic phenomena, pertaining to the evolution of overall economic magnitudes. From a formal standpoint, economic forecasting can be defined as a set of hypothetical statements about future macroeconomic developments, such as the evolution of overall activity or price levels. As a rule, economic forecasting involves:

- A view of the economic future, consisting of quantitative estimates for the main macroeconomic variables at different horizons.
- An underlying analytical ‘story’, which includes an exposition of the assumptions underpinning the forecast, and an investigation of the risks that could materialise if some of them turned out to be wrong.
- A discussion of the implied options for the user of the forecast.

Economic forecasting is basically a structured way to peer into the future using all available information, including recent outcomes, survey data on agents’ mood and plans, prior knowledge of economic relationships, and so forth. Obviously, forecasting requires economic and econometric expertise, and in particular a specialised knowledge of several techniques. But it also draws on history as well as

on political and social science, while the forecaster's own judgement plays a crucial role.

The book's aims

This book covers all aspects of economic forecasting. It is aimed both at the non-specialists wishing to understand this field better and at forecasters looking for a comprehensive and up-to-date compendium on the subject. It thus fills the void between specialised textbooks with a heavy statistical content and more general economic textbooks. The perspective here is that of practitioners presenting their profession's contribution to analysis and decision-making, in particular economic policymaking.

The book describes and discusses most current forecasting techniques. It tries to be comprehensive, but with an emphasis on those techniques that are most commonly used in practice. The mathematical material is kept to a minimum and can be understood by any reader with a general, undergraduate level, background in economics. The forecasting tools are not presented in isolation. They are motivated by empirical observations and theoretical considerations, and as much intuition as possible is provided. In addition, they are accompanied by important advice on practical implementation.

The book further explains the role of economic forecasts. Granted, any economic forecast is inherently shrouded in uncertainty. But when properly prepared and used, it helps improve the quality of decision-making. Indeed, the value of any particular forecast has less to do with specific numbers than with its ability to structure public debate in a simple yet rigorous fashion. Forecasters therefore have a pedagogical and advisory role.

Outline

The book reviews both the methods and the uses of economic forecasting. It is structured as follows. The first chapter deals with the principles of economic forecasting and answers three basic questions: what to forecast, why forecast and how to forecast? It also serves as an introduction to the main topics covered in the book. Chapter 2 goes over the economic data, and in particular the national accounts, which constitute the general framework for economic forecasting.

The book then turns to the forecaster's usual tools. Chapter 3 focuses on macro-economic monitoring and business cycle analysis for the purpose of very near-term forecasting. Chapter 4 presents the time series methods used in forecasting. Chapters 5 and 6 are devoted to the so-called structural approaches, and respectively discuss the modelling of economic behaviour and macroeconomic models. The next four chapters introduce the techniques used in medium- and long-run projections (Chapter 7), financial forecasting (Chapter 8), budget forecasting (Chapter 9) and sectoral forecasting (Chapter 10).

The following chapters offer perspectives on the contribution of economic forecasts to decision-making. Chapter 11 discusses forecasting accuracy. Chapter 12

explains how forecasts are used in practice by economic policymakers and other agents. Chapter 13 examines the communication of economic forecasts, and includes some discussion of forecasting ethics. Lastly, Chapter 14 tours the institutions producing forecasts.

Each chapter is relatively self-contained, allowing readers to go explore them in the order that best suits their needs.

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