

*Economic Integration, Fiscal Policy, and
Location of Economic Activities:
The Case of Mercosur*

Inaugural-Dissertation
zur Erlangung des Grades eines Doktors
der Wirtschafts- und Gesellschaftswissenschaften
durch die
Rechts- und Staatswissenschaftliche Fakultät
der Rheinischen Friedrich-Wilhelms-Universität
Bonn

vorgelegt von *Christian Volpe Martincus*
aus La Plata, Argentinien

Dezember 2003

Dekan: Prof. Dr. Urs Kindhäuser

Erstreferent: Prof. Dr. Jürgen von Hagen

Zweireferent: Prof. Dr. Johannes Frerich

Tag der mündlichen Prüfung: 09.12.2003

Gedruckt mit Unterstützung der Konrad-Adenauer-Stiftung

Berichte aus der Volkswirtschaft

Christian Volpe Martincus

**Economic Integration, Fiscal Policy,
and Location of Economic Activities:
The Case of Mercosur**

D 98 (Diss. Universität Bonn)

Shaker Verlag
Aachen 2004

Bibliographic information published by Die Deutsche Bibliothek

Die Deutsche Bibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data is available in the internet at <http://dnb.ddb.de>.

Zugl.: Bonn, Univ., Diss., 2003

Copyright Shaker Verlag 2004

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publishers.

Printed in Germany.

ISBN 3-8322-2499-8

ISSN 0945-1048

Shaker Verlag GmbH • P.O. BOX 101818 • D-52018 Aachen

Phone: 0049/2407/9596-0 • Telefax: 0049/2407/9596-9

Internet: www.shaker.de • eMail: info@shaker.de

To my wife, my parents, and my sister

Acknowledgements

This dissertation presents the main results of my *Ph.D.* study at the Center for European Integration Studies (ZEI), University of Bonn. This research has benefited from the contributions of several persons. I am specially indebted to my supervisor, Prof. Dr. Jürgen von Hagen, who provided me a great work environment and an excellent guidance through the study.

I am also grateful to Prof. Dr. Johannes Frerich for his willingness to read this dissertation and Prof. Dr. Manfred Neumann.

I also owe gratitude to Iulia Traistaru for her stimulating discussions and critics on Chapter III and Jennifer Wu for her patience to read carefully most chapters of this dissertation and her valuable comments.

I also thank Ronald Moomaw, Boris Hofmann, Jizhong Zhou, Gianmarco Ottaviano, Germán Calfat, Konrad Stahl, Henry Overman, Lukas Vogel, Marius Brülhart, Kevin McNamara, and participants at the ZEI Research Seminars, the 7th Meeting of LACEA (Madrid), the Seminar at UFSIA (Antwerp), the 5th ZEW Summer Workshop (Mannheim), the 43rd Congress of ERSA (Jyväskylä), and the 5th Congress of ETSG (Madrid) for helpful comments and suggestions on diverse parts of this investigation.

Many thanks also go to Katiuscia Rocha from the Brazilian Ministry of Works for facilitating me the access to Brazilian employment data and for responding efficiently to my several data requests and Isaias Salgado Ugarte for his generosity in giving me the program used to calculate the multimodality tests reported in Chapter IV.

I would also like to thank *Konrad-Adenauer-Stiftung* for financing my *Ph.D.* study.

Finally, and most importantly, I am grateful to my wife Silvia Locatelli Hoops for her unconditional support and to my parents, Amilcar Volpe and Alicia Martincus, for their example and permanent encouragement.

Christian Volpe Martincus

December 2003

CONTENTS

I. GENERAL INTRODUCTION	1
II. DO ECONOMIC INTEGRATION AND FISCAL COMPETITION HELP TO EXPLAIN RECENT LOCATIONAL PATTERNS IN BRAZIL?.....	5
1. INTRODUCTION	5
2. THEORETICAL FRAMEWORK	8
2.1. ASSUMPTIONS	8
2.2. SHORT RUN EQUILIBRIUM	10
2.3. LONG-RUN EQUILIBRIUM	13
2.4. ASYMMETRIC LOCATIONAL ADVANTAGES.....	15
2.5. ASYMMETRIC INFRASTRUCTURE QUALITY	17
2.6. ASYMMETRIC AID POLICIES	19
2.7. VERTICAL LINKAGES	23
2.8. ASYMMETRIC FACTOR ENDOWMENTS	27
3. DESCRIPTIVE ANALYSIS	28
3.1. DATA	29
3.2. SOME EVIDENCE ON THE BASIC MAGNITUDES	31
3.2.1. <i>State distribution of manufacturing employment</i>	31
3.2.2. <i>Sectoral composition of manufacturing employment</i>	32
3.2.3. <i>Evidence from production data</i>	32
3.3. CONCENTRATION AND SPECIALIZATION PATTERNS	34
3.3.1. <i>Definitions</i>	34
3.3.2. <i>Measurement</i>	36
3.3.3. <i>Concentration patterns</i>	41
3.3.4. <i>Specialization patterns</i>	45
3.4. LOCATIONAL AND SPECIALIZATION BIASES	48
3.4.1. <i>State characteristic bias of industries</i>	48
3.4.2. <i>Industry characteristic bias of states</i>	53
3.5. IN SUMMARY.....	55
4. ECONOMETRIC ANALYSIS	57
4.1. MAIN HYPOTHESES	57
4.2. ESTIMATION ISSUES AND SPECIFICATION	61
4.3. ESTIMATION RESULTS	66
5. CONCLUDING REMARKS	72
6. REFERENCES	76
A. APPENDIX	85
A.1. VARIABLES.....	85
A.2. DESCRIPTIVE EMPIRICS	89
A.3. ECONOMETRIC EVIDENCE	98

B. BACKGROUND INFORMATION	115
B.1. MERCOSUR.....	115
B.2. FISCAL COMPETITION IN BRAZIL	117
 III. DETERMINANTS OF MANUFACTURING CONCENTRATION PATTERNS IN MERCOSUR	123
1. INTRODUCTION	123
2. THEORETICAL BACKGROUND	125
2.1. THE NEOCLASSICAL THEORY.....	126
2.2. THE NEW TRADE THEORY.....	127
2.3. THE NEW ECONOMIC GEOGRAPHY	129
2.4. SUMMARY OF TESTABLE HYPOTHESES.....	130
3. DATA AND MEASUREMENT	131
3.1. THE DATA	131
3.2. MEASURES OF GEOGRAPHIC CONCENTRATION OF MANUFACTURING	133
4. DESCRIPTIVE EMPIRICS	135
4.1. MANUFACTURING PRODUCTION STRUCTURES.....	135
4.2. MANUFACTURING CONCENTRATION PATTERNS.....	138
5. DETERMINANTS OF MANUFACTURING CONCENTRATION PATTERNS...139	
5.1. DEPENDENT VARIABLE.....	140
5.2. EXPLANATORY VARIABLES.....	140
5.3. SPECIFICATION AND ECONOMETRIC ISSUES.....	145
5.4. BASIC ESTIMATION RESULTS.....	147
5.5. DOES MERCOSUR MAKE A DIFFERENCE?	148
6. CONCLUDING REMARKS	151
7. REFERENCES	153
A. APPENDIX	158
A1. INDUSTRY CLASSIFICATION	158
A2. DESCRIPTIVE EMPIRICS	159
A3. ECONOMETRIC EVIDENCE	164
 IV. CHANGING SPECIALIZATION PATTERNS IN MERCOSUR.....183	
1. INTRODUCTION	183
2. THEORETICAL FRAMEWORK	186
2.1. BASIC MODEL.....	186
2.1.1. <i>General trade liberalization</i>	189
2.1.2. <i>Regional trade liberalization</i>	190
2.2. DYNAMICS.....	193
2.2.1. <i>General trade liberalization</i>	196
2.2.2. <i>Regional trade liberalization</i>	197

3. METHODOLOGICAL FRAMEWORK	198
3.1. MAIN INSIGHTS	198
3.2. PRELIMINARY ANALYSIS	200
3.2.1. <i>Kernel density estimates</i>	201
3.2.2. <i>Tukey box-plots</i>	203
3.2.3. <i>Cross-profile plots</i>	203
3.3. ESTIMATION METHODOLOGY.....	204
3.3.1. <i>Transition matrices</i>	204
3.3.2. <i>Ergodic distribution</i>	207
3.3.3. <i>Mobility indices</i>	208
3.3.4. <i>Hypotheses testing</i>	209
4. RESULTS	210
4.1. PRODUCTION PATTERNS	211
4.1.1. <i>Data</i>	211
4.1.2. <i>Measurement</i>	211
4.1.3. <i>Preliminary data analysis</i>	212
4.1.4. <i>Estimation results</i>	216
4.2. TOTAL TRADE PATTERNS.....	217
4.2.1. <i>Data</i>	217
4.2.2. <i>Measurement</i>	217
4.2.3. <i>Preliminary data analysis</i>	219
4.2.4. <i>Estimation results</i>	224
4.3. REGIONAL TRADE PATTERNS	225
4.3.1. <i>Data</i>	225
4.3.2. <i>Measurement</i>	226
4.3.3. <i>Preliminary data analysis</i>	227
4.3.4. <i>Estimation results</i>	231
5. CONCLUDING REMARKS	233
6. REFERENCES	236
A. APPENDIX	245
A1. TRADE LIBERALIZATION EPISODES.....	245
A2. INDUSTRY CLASSIFICATIONS	246
A3. PRODUCTION PATTERNS	248
A4. TOTAL TRADE PATTERNS.....	260
A5. REGIONAL TRADE PATTERNS	272
V. FINAL REMARKS	283