

VU Research Portal

Panel data models for socioeconomic studies in crime and education

van de Werve, Ilka

2023

DOI (link to publisher)
[10.5463/thesis.166](https://doi.org/10.5463/thesis.166)

document version
Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

van de Werve, I. (2023). *Panel data models for socioeconomic studies in crime and education*. [PhD-Thesis - Research and graduation internal, Vrije Universiteit Amsterdam]. <https://doi.org/10.5463/thesis.166>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:
vuresearchportal.ub@vu.nl

Contents

Introduction	1
1 Dynamic factor models with clustered loadings: Forecasting education flows using unemployment data	5
1.1 Introduction	5
1.2 Data	9
1.3 Methodology for modeling and forecasting	12
1.3.1 Dynamic factor modeling framework	13
1.3.2 Two-step estimation procedure	15
1.3.3 Clustered forecasting method	18
1.4 Monte Carlo study	19
1.4.1 Parameter estimation results	21
1.4.2 Forecasting results	24
1.4.3 Sensitivity analysis	26
1.5 Empirical study	29
1.6 Conclusion	36
Appendices	37

1.A	Assumptions for asymptotic properties	37
1.B	Additional Monte Carlo results	39
1.C	Additional empirical results	44
2	Crime, families and the economy: Micro-conditions as moderator of macro-effects	45
2.1	Introduction	45
2.2	Previous literature	47
2.3	Hypotheses	51
2.4	Data	54
2.4.1	Macro-level data	55
2.4.2	Micro-level data	57
2.5	Analytical strategy	61
2.6	Results	63
2.6.1	Hypotheses testing	63
2.6.2	Total effects	67
2.6.3	Sensitivity analyses	69
2.7	Conclusion	71
	Appendices	75
2.A	Sensitivity analyses	75
3	Finding the European crime drop using a panel data model with stochastic trends	79
3.1	Introduction	79
3.2	Methodology	82

3.3	Empirical evidence of a European crime drop	86
3.3.1	Data	86
3.3.2	Models with and without macroeconomic regressors	91
3.3.3	Including an Eastern European factor in the crime drop	95
3.3.4	Comparison with the US crime drop	96
3.4	Discussion and conclusion	98
	Appendices	102
3.A	Country codes	102
3.B	Sign counts of macroeconomic regressors	103
	Summary	105
	Bibliography	107
	Acknowledgements	117
	Author Contributions	121
	Tinbergen Institute Research Series	123