

## Appendix

Table A.1: Robustness checks of estimations with alternatives demand-parameters (coef= 0.438 from long-run estimations and 0.237 from Scheffler et al 2008)

|                                              | Dependent variable LN(GRADUATES) average over<br>8 to 9 years later |                     |                       |                       | Dependent variable ln(IMMIGRATION<br>RATE) no delay |                      |                       |                       | Dependent variable ln(EMIGRATION<br>RATE) no delay |                      |                       |                       |
|----------------------------------------------|---------------------------------------------------------------------|---------------------|-----------------------|-----------------------|-----------------------------------------------------|----------------------|-----------------------|-----------------------|----------------------------------------------------|----------------------|-----------------------|-----------------------|
|                                              | OLS estimations                                                     |                     | IV                    |                       | OLS estimations                                     |                      | IV                    |                       | OLS estimations                                    |                      | IV                    |                       |
|                                              | coef 0.438                                                          | coef 0.237          | coef 0.438            | coef 0.237            | coef                                                | coef 0.237           | coef 0.438            | coef 0.237            | coef                                               | coef 0.237           | coef                  | coef                  |
| Shortages                                    | 0.738***<br>(0.267)                                                 | 0.722***<br>(0.271) | 0.258<br>(0.513)      | 0.285<br>(0.525)      | 0.126**<br>(0.0442)                                 | 0.126***<br>(0.0441) | 0.134**<br>(0.0579)   | 0.138**<br>(0.0588)   | 0.160**<br>(0.0315)                                | 0.166***<br>(0.0321) | 0.110**<br>(0.0458)   | 0.113**<br>(0.0469)   |
| Controls                                     | YES                                                                 | YES                 | YES                   | YES                   | YES                                                 | YES                  | YES                   | YES                   | YES                                                | YES                  | YES                   | YES                   |
| j                                            | YES                                                                 | YES                 | YES                   | YES                   | YES                                                 | YES                  | YES                   | YES                   | YES                                                | YES                  | 0.801                 | YES                   |
| t                                            | YES                                                                 | YES                 | YES                   | YES                   | YES                                                 | YES                  | YES                   | YES                   | YES                                                | YES                  | YES                   | YES                   |
| <i>First stage</i><br>lnphysdependancyratio5 |                                                                     |                     | 0.0845***<br>(0.0192) | 0.0891***<br>(0.0151) |                                                     |                      | 0.0844***<br>(0.0143) | 0.0819***<br>(0.0144) |                                                    |                      | 0.0844**<br>(0.0143)  | 0.0819**<br>(0.0144)  |
| Indensiteruralaussi                          |                                                                     |                     | -0.104*<br>(0.0587)   | -0.127***<br>(0.0361) |                                                     |                      | -0.0306**<br>(0.0118) | -0.0298**<br>(0.0123) |                                                    |                      | -0.0306**<br>(0.0118) | -0.0298**<br>(0.0123) |
| Observations                                 | 224                                                                 | 224                 | 188                   | 188                   | 237                                                 | 237                  | 181                   | 181                   | 237                                                | 237                  | 181                   | 181                   |
| R-squared                                    | 0.857                                                               | 0.857               | 0.855                 | 0.855                 | 0.993                                               | 0.993                | 0.997                 | 0.997                 | 0.989                                              | 0.989                | 0.965                 | 0.965                 |
| Cluster                                      | jt                                                                  | jt                  | jt                    | jt                    | jt                                                  | jt                   | jt                    | jt                    | jt                                                 | jt                   | jt                    | jt                    |
| Hansen Test (P-Value)                        |                                                                     |                     | 0.134                 | 0.136                 |                                                     |                      | 0.547                 | 0.545                 |                                                    |                      | 0.371                 | 0.370                 |
| Kleibergen-Paap test                         |                                                                     |                     | 23.98                 | 23.54                 |                                                     |                      | 25.10                 | 22.84                 |                                                    |                      | 25.10                 | 22.84                 |
| F-Test                                       |                                                                     |                     | 31.89                 | 31.99                 |                                                     |                      | 2254                  | 2328                  |                                                    |                      | 76.62                 | 77.92                 |

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure A.1: Average shortage measures for the US, the UK, Canada, Australia, New Zealand and Ireland between 1991 and 2004

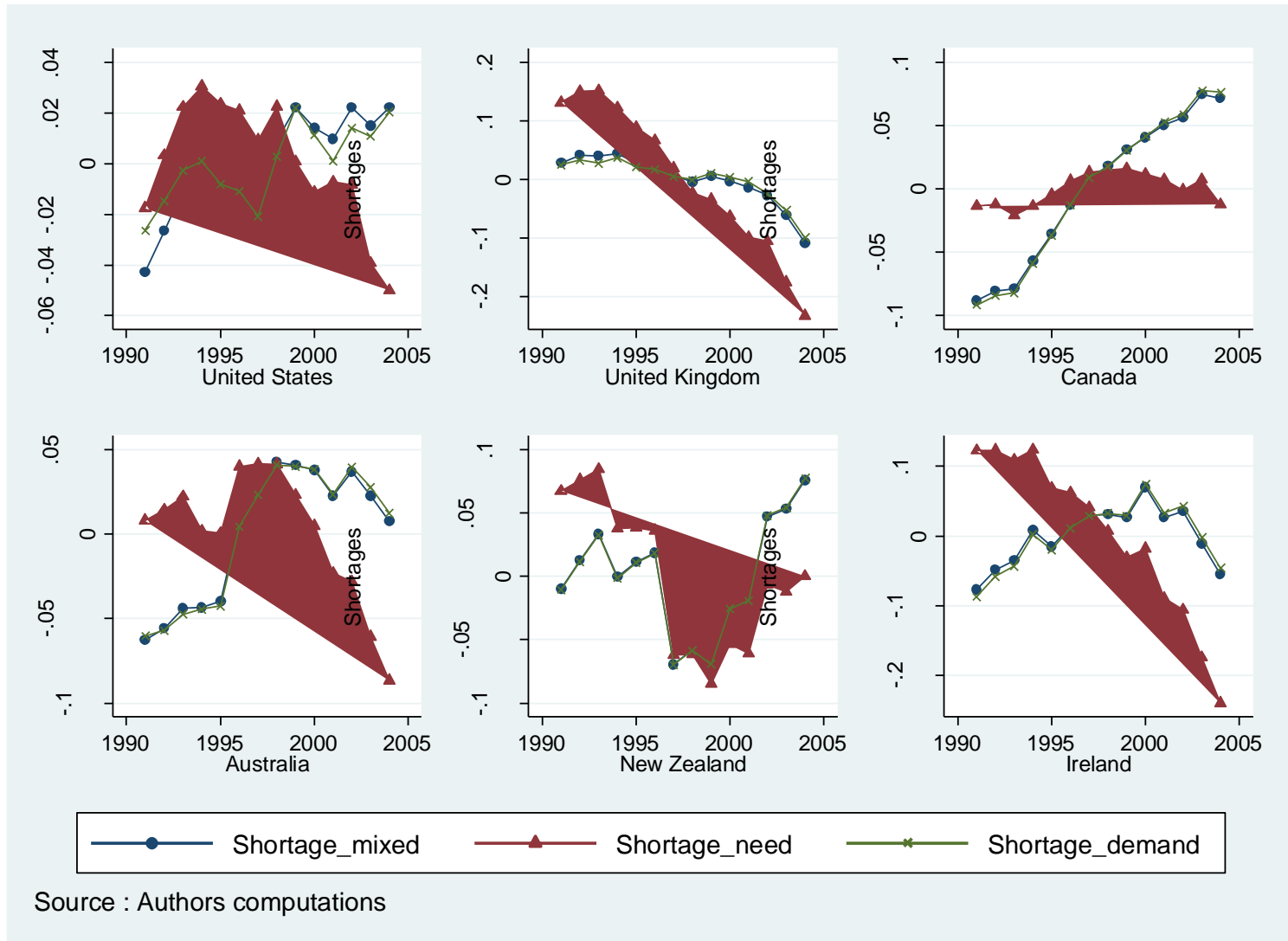


Figure A.2: Average shortage measures for France, Germany, Italy, Portugal, Austria and Belgium between 1991 and 2004

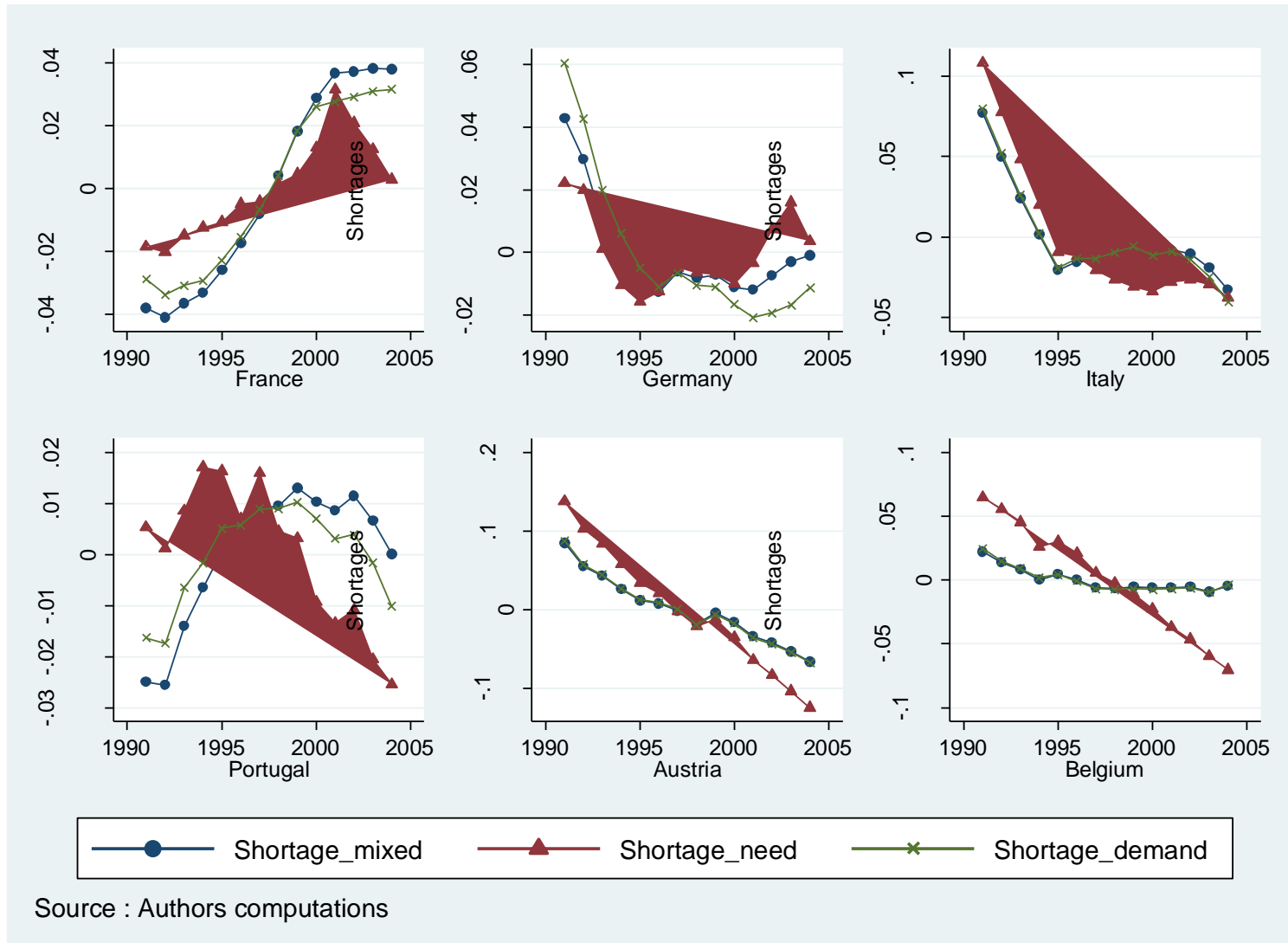


Figure A.3: Average shortage measures for Denmark, Norway, Sweden, Finland, and Switzerland between 1991 and 2004

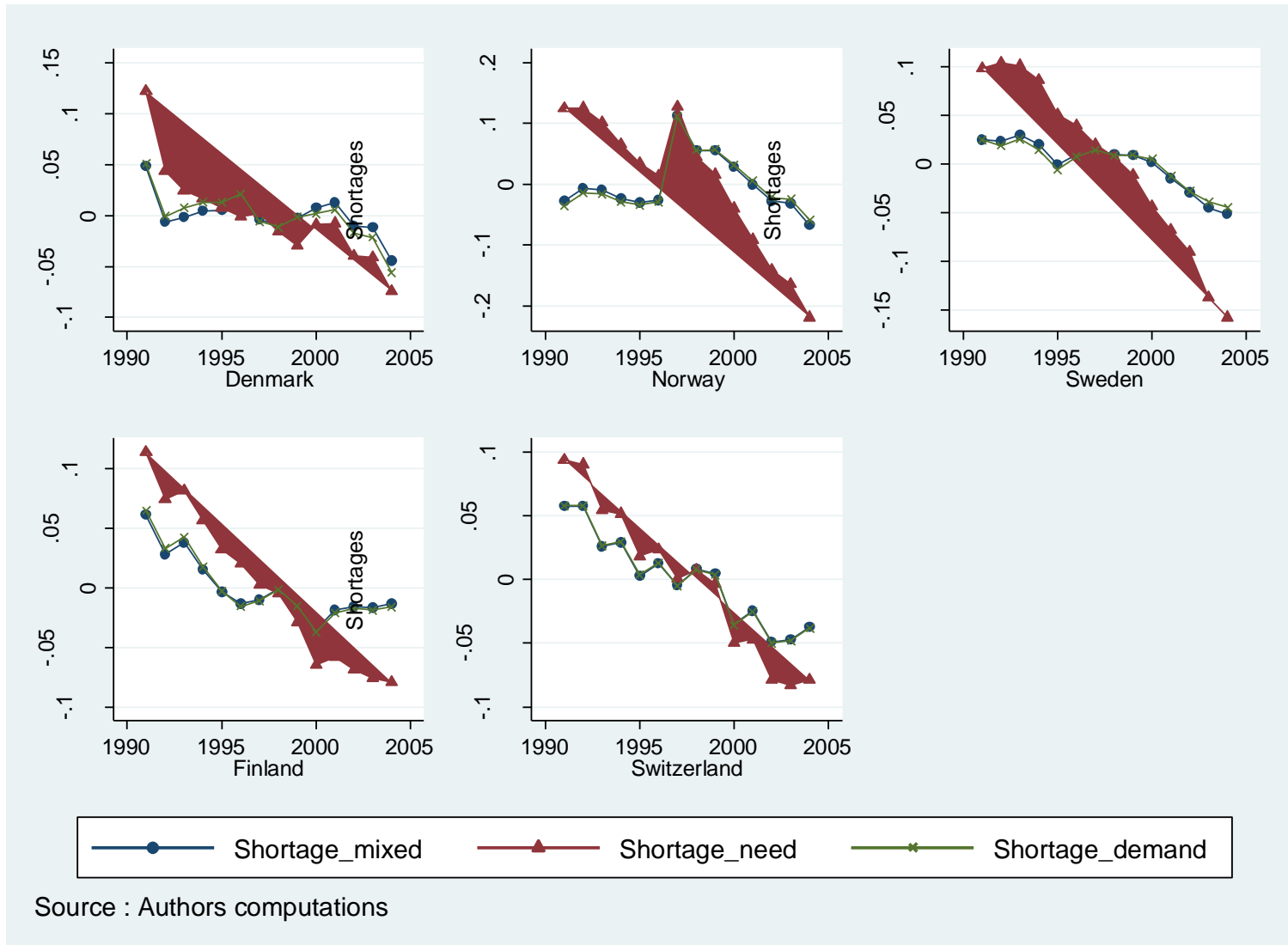
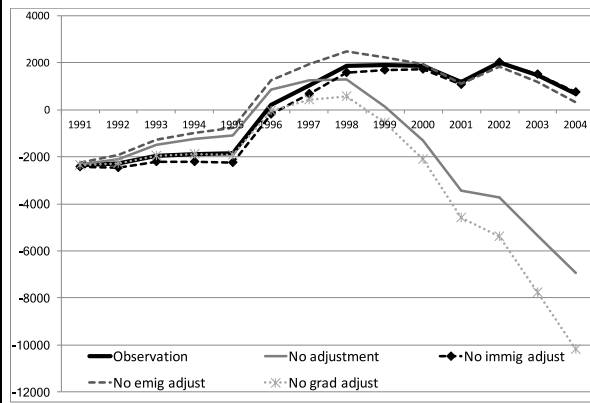


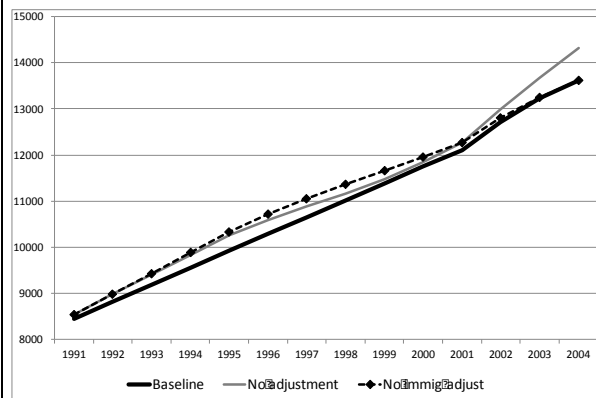


Figure A4: Simulation results for Australia

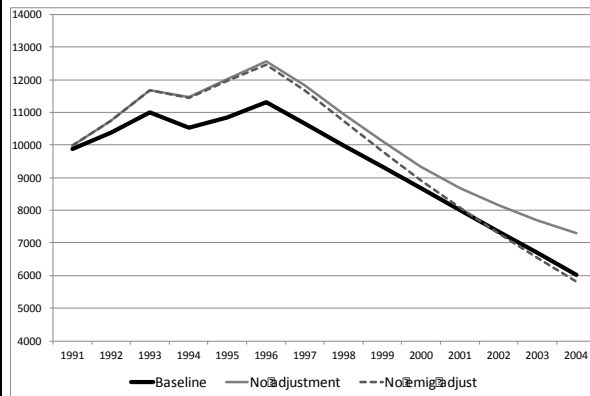
**Figure A4a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A4b: Immigrant physicians in level**



**Figure A4c: scenario 3 - Emigrant physicians in level**



**Figure A4d: Graduated physicians in level**

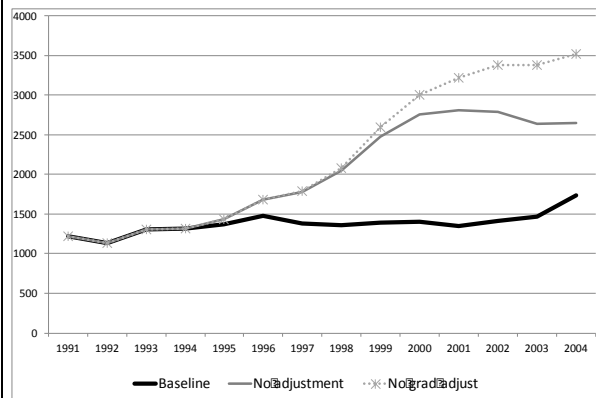
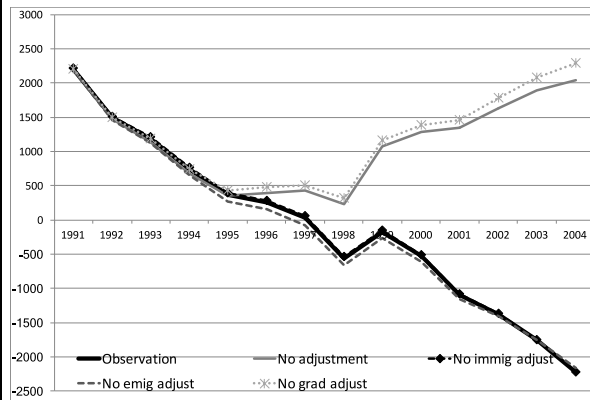
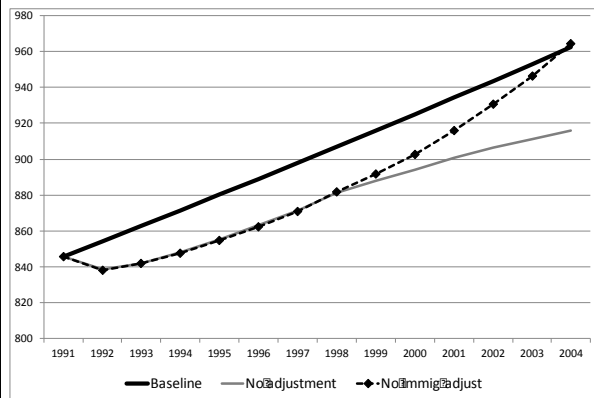


Figure A5: Simulation results for Austria

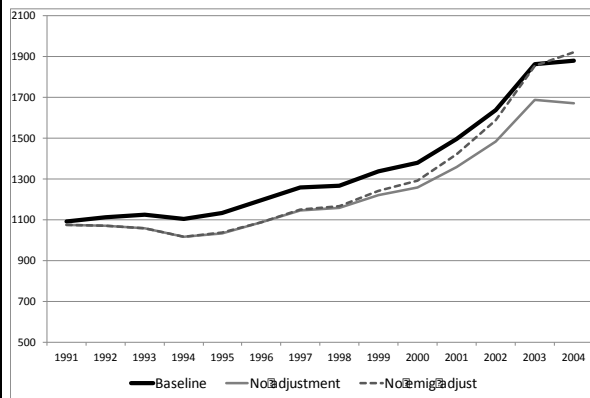
**Figure A5a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A5b: Immigrant physicians in level**



**Figure A5c: scenario 3 - Emigrant physicians in level**



**Figure A5d: Graduated physicians in level**

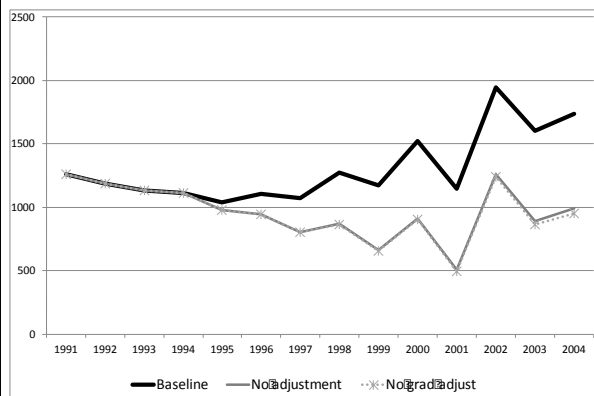
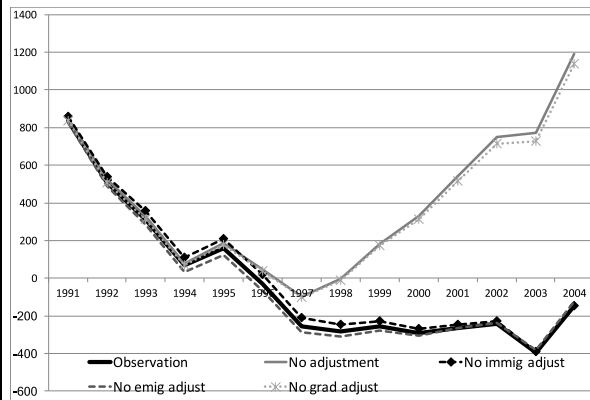
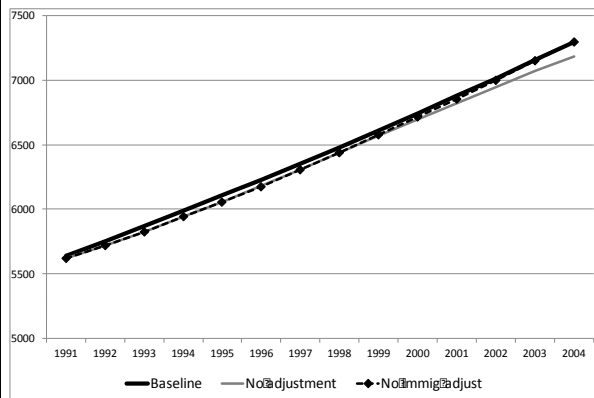


Figure A6: Simulation results for Belgium

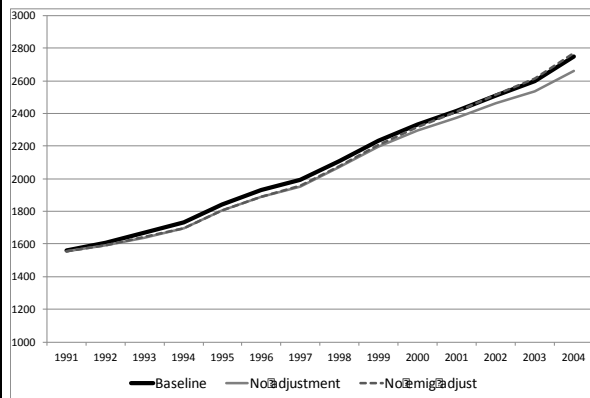
**Figure A6a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A6b: Immigrant physicians in level**



**Figure A6c: scenario 3 - Emigrant physicians in level**



**Figure A6d: Graduated physicians in level**

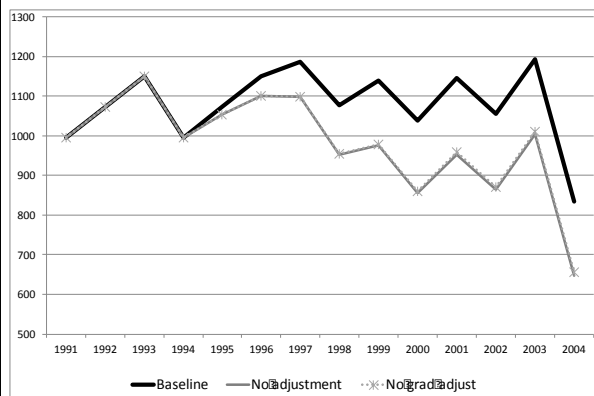
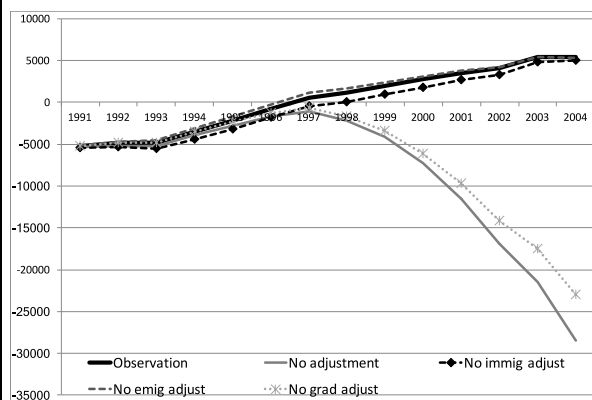


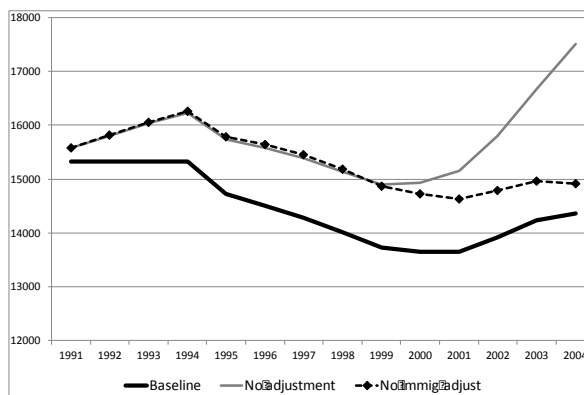


Figure A7: Simulation results for Canada

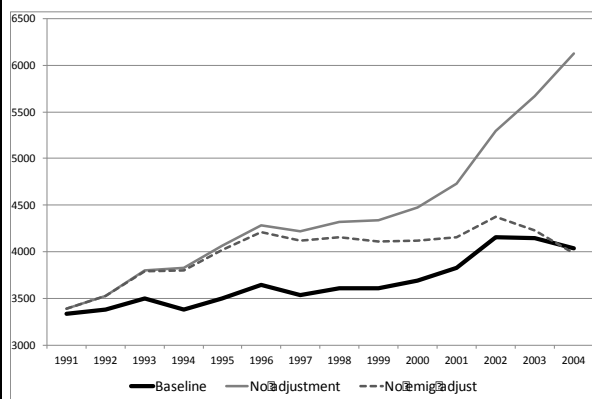
**Figure A7a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A7b: Immigrant physicians in level**



**Figure A7c: scenario 3 - Emigrant physicians in level**



**Figure A7d: Graduated physicians in level**

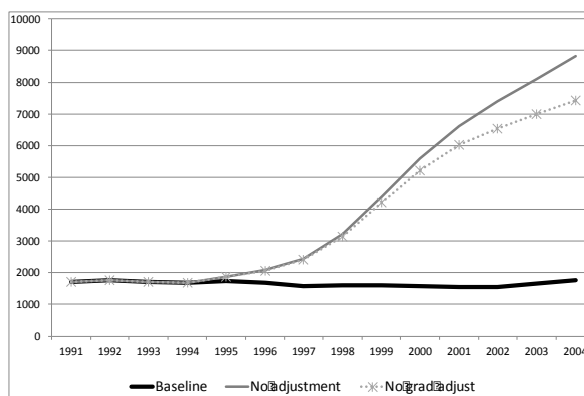
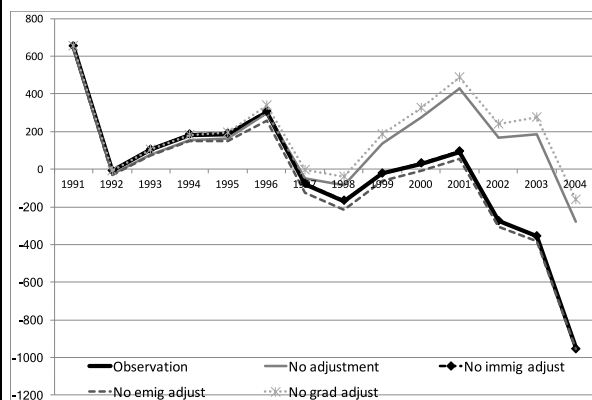
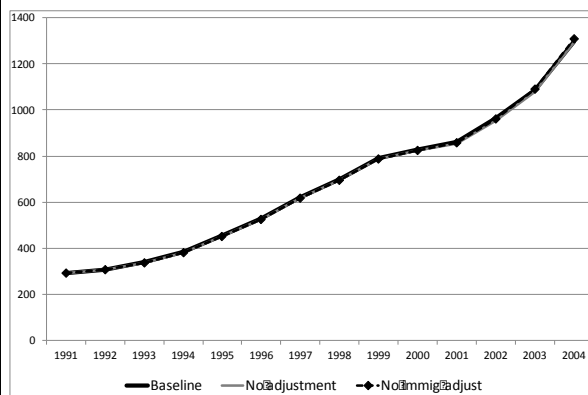


Figure A8: Simulation results for Denmark

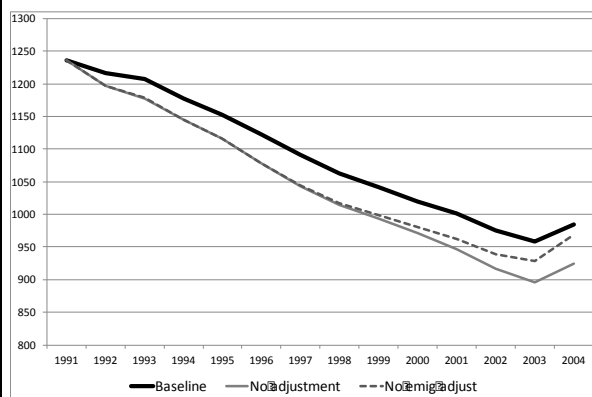
**Figure A8a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A8b: Immigrant physicians in level**



**Figure A8c: scenario 3 - Emigrant physicians in level**



**Figure A8d: Graduated physicians in level**

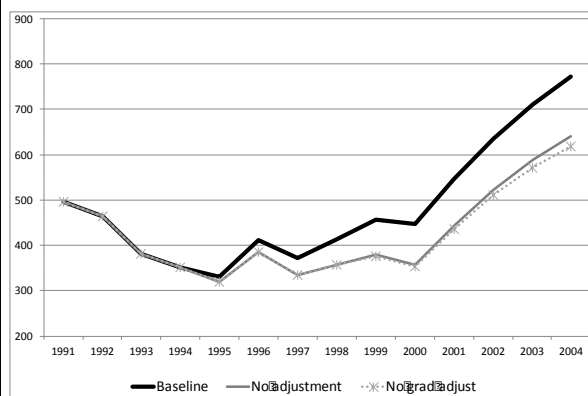
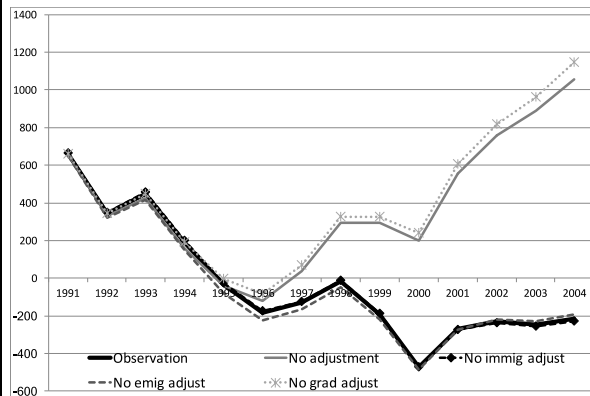
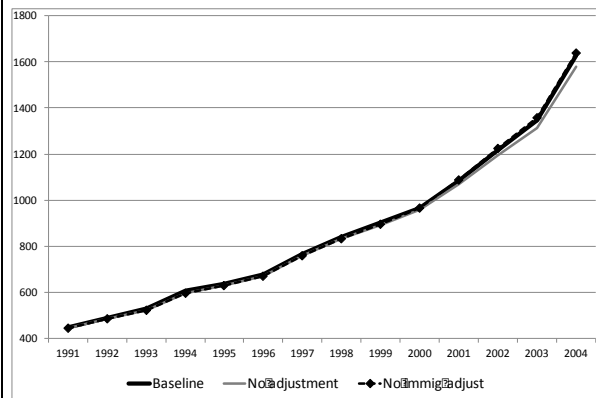


Figure A9: Simulation results for Finland

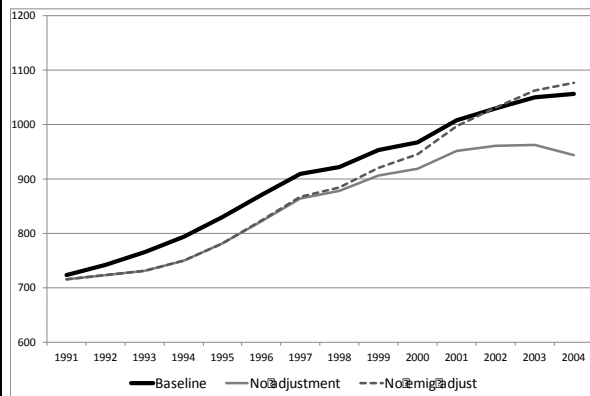
**Figure A9a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A9b: Immigrant physicians in level**



**Figure A9c: scenario 3 - Emigrant physicians in level**



**Figure A9d: Graduated physicians in level**

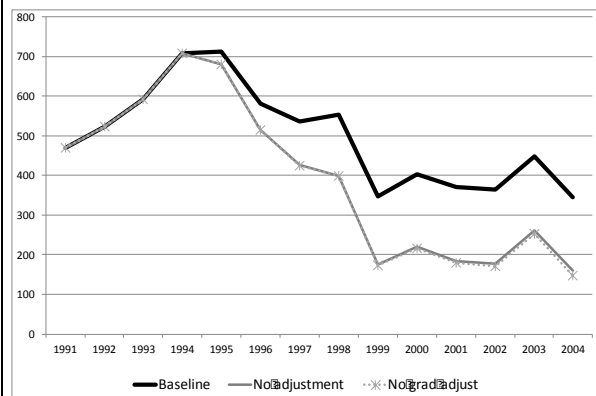
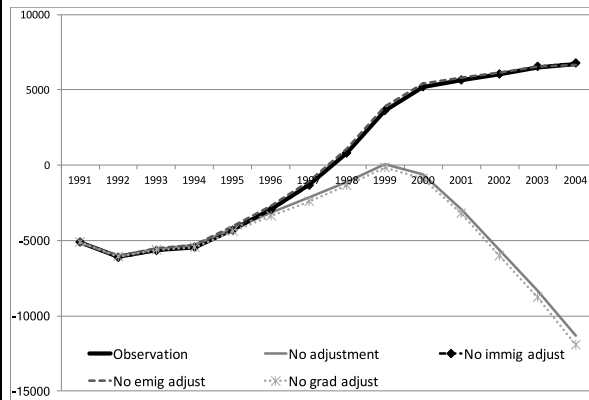
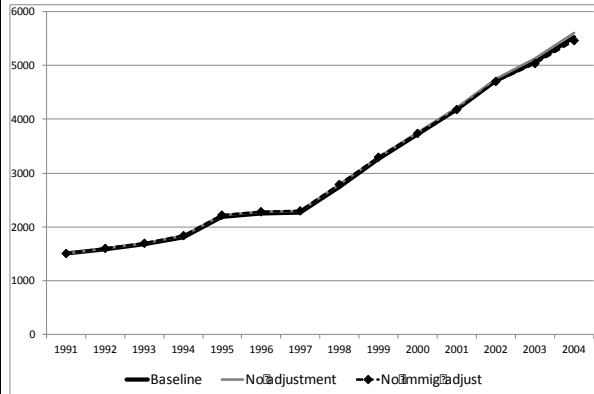


Figure A10: Simulation results for France

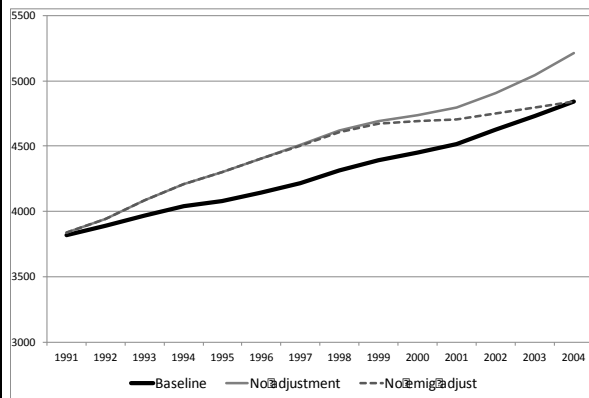
**Figure A10a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A10b: Immigrant physicians in level**



**Figure A10c: scenario 3 - Emigrant physicians in level**



**Figure A10d: Graduated physicians in level**

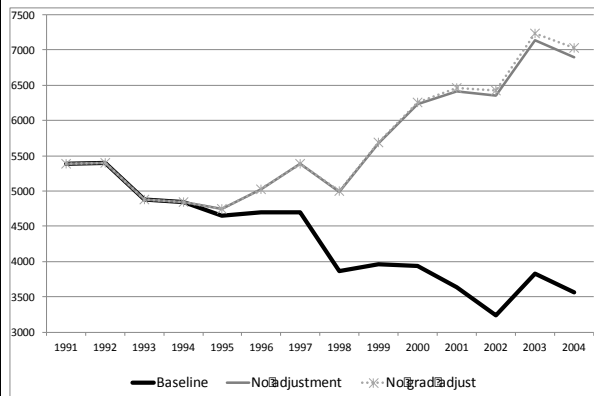


Figure A11: Simulation results for Germany

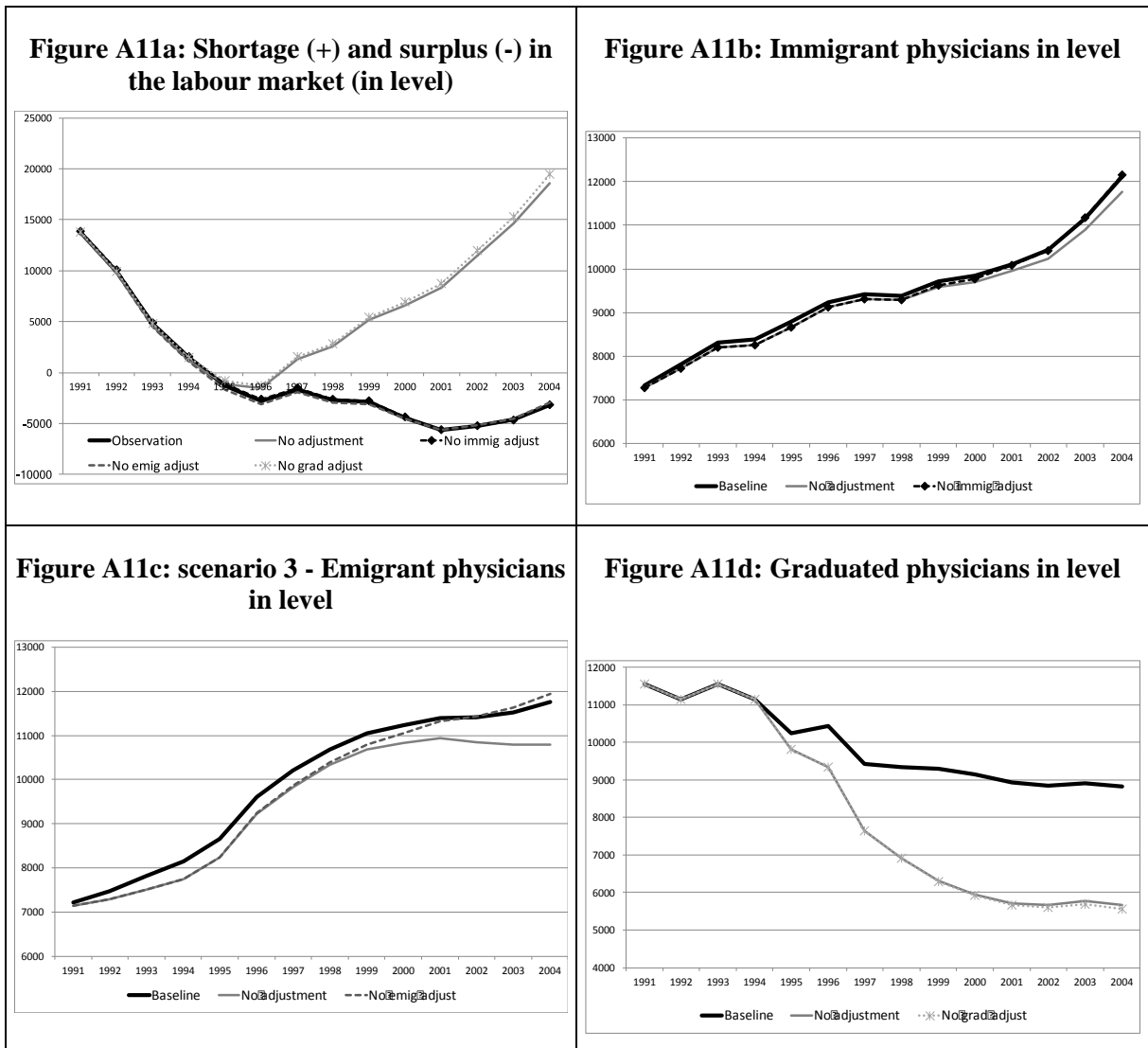
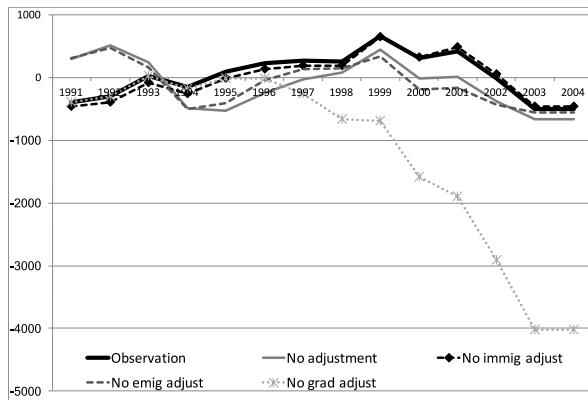
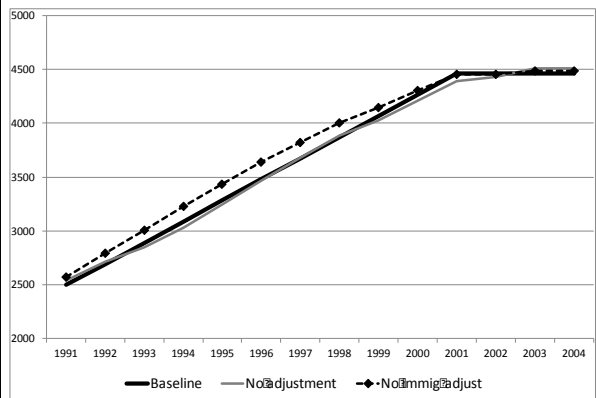


Figure A12: Simulation results for Ireland

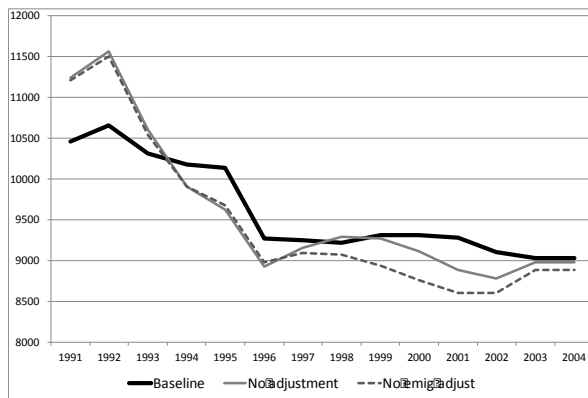
**Figure A12a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A12b: Immigrant physicians in level**



**Figure A12c: scenario 3 - Emigrant physicians in level**



**Figure A12d: Graduated physicians in level**

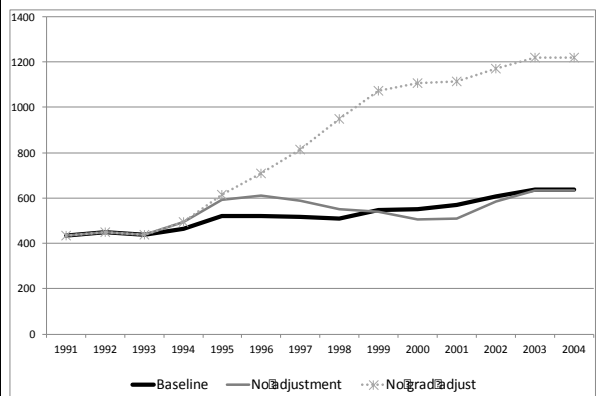


Figure A13: Simulation results for Italy

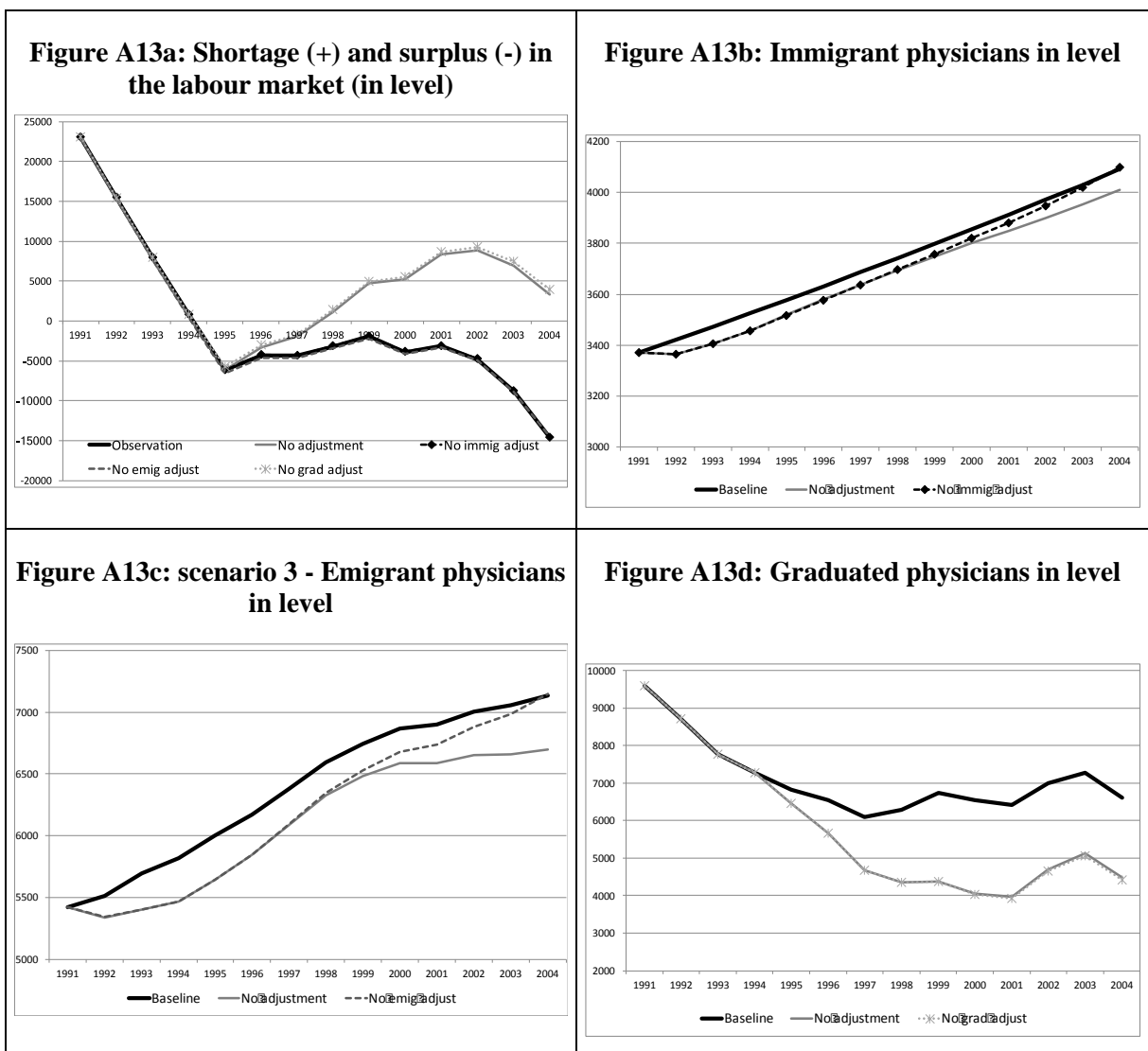
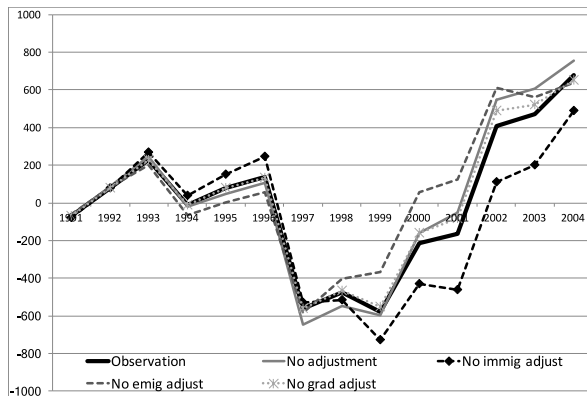
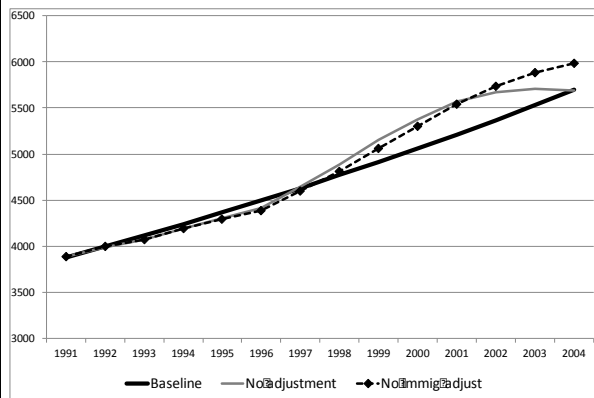


Figure A14: Simulation results for New Zealand

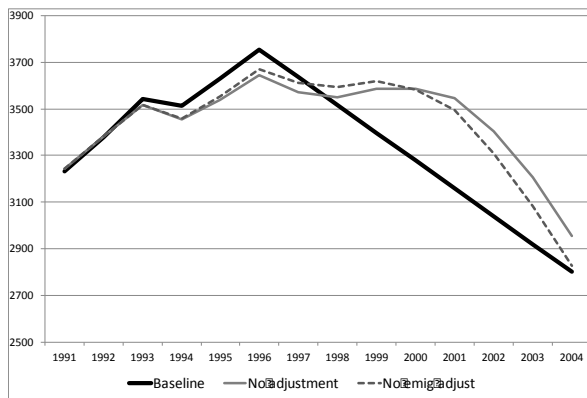
**Figure A14a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A14b: Immigrant physicians in level**



**Figure A14c: scenario 3 - Emigrant physicians in level**



**Figure A14d: Graduated physicians in level**

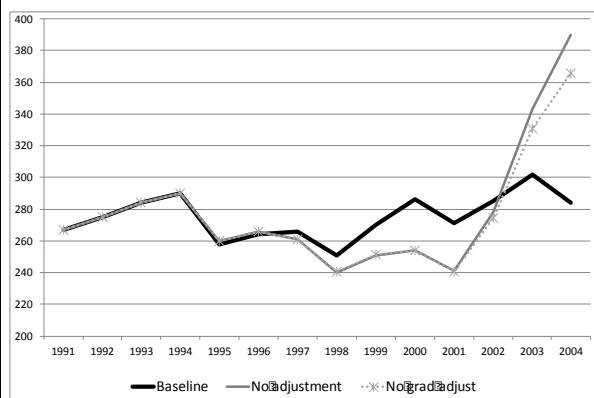
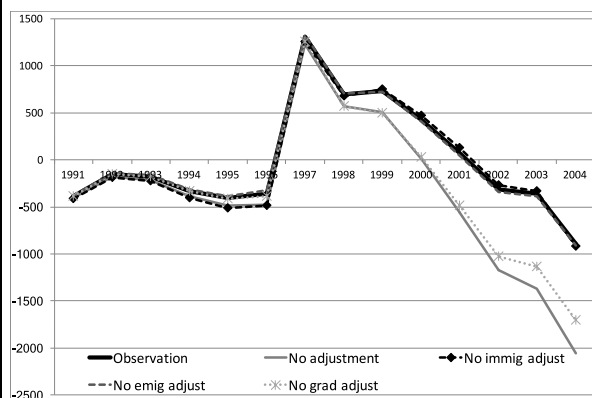


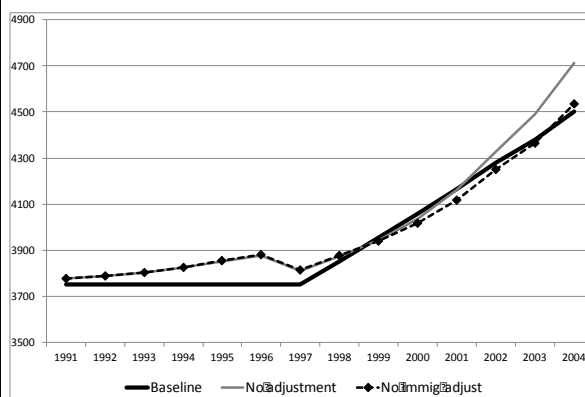


Figure A15: Simulation results for Norway

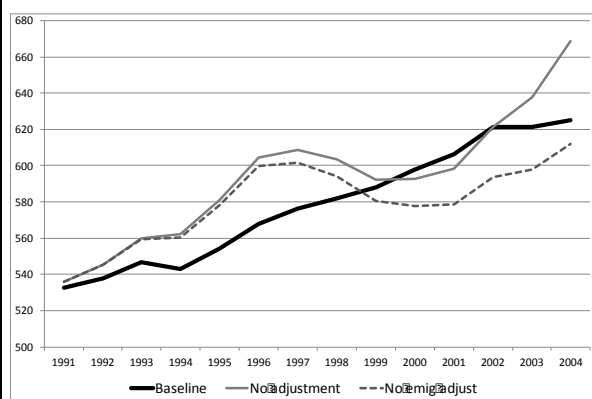
**Figure A15a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A15b: Immigrant physicians in level**



**Figure A15c: scenario 3 - Emigrant physicians in level**



**Figure A15d: Graduated physicians in level**

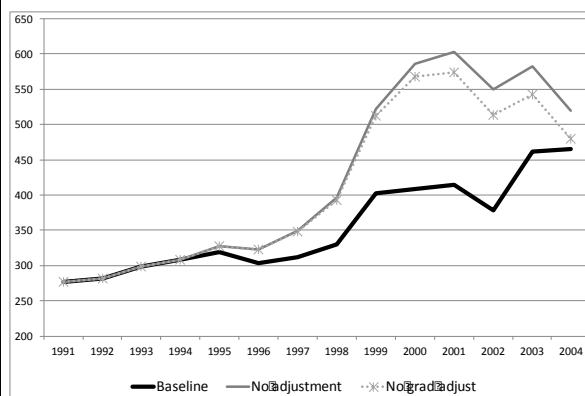
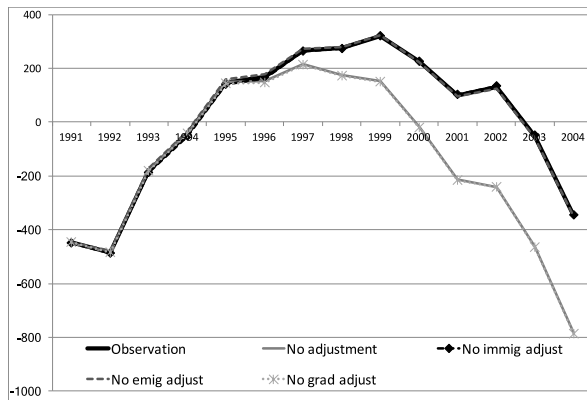
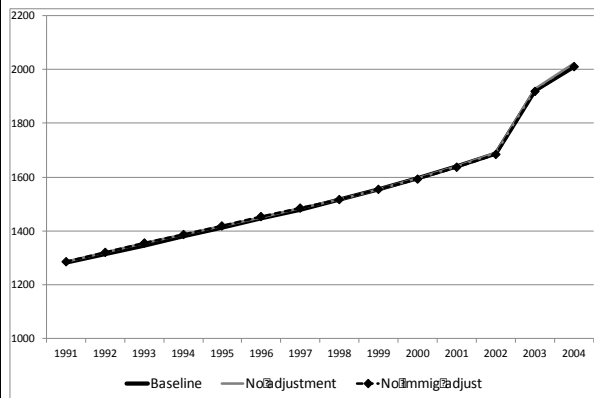


Figure A16: Simulation results for Portugal

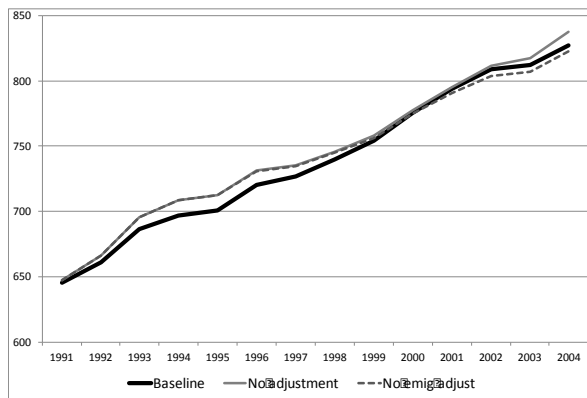
**Figure A16a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A16b: Immigrant physicians in level**



**Figure A16c: scenario 3 - Emigrant physicians in level**



**Figure A16d: Graduated physicians in level**

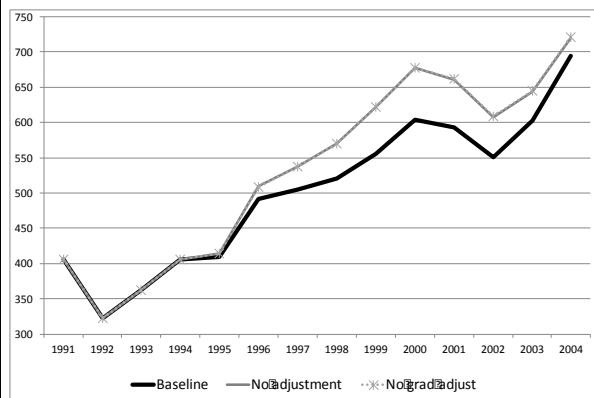
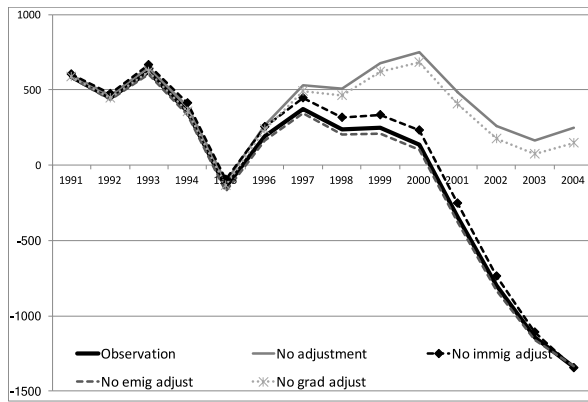
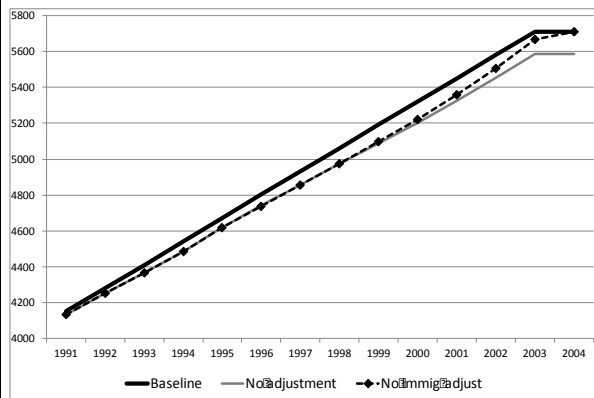


Figure A17: Simulation results for Sweden

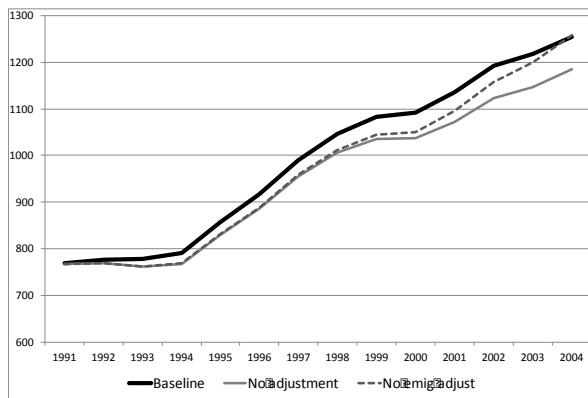
**Figure A17a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A17b: Immigrant physicians in level**



**Figure A17c: scenario 3 - Emigrant physicians in level**



**Figure A17d: Graduated physicians in level**

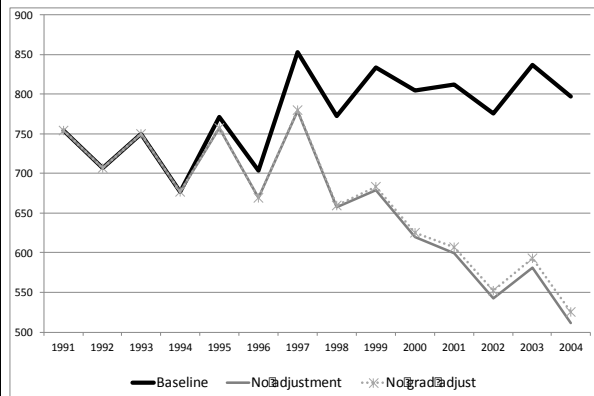
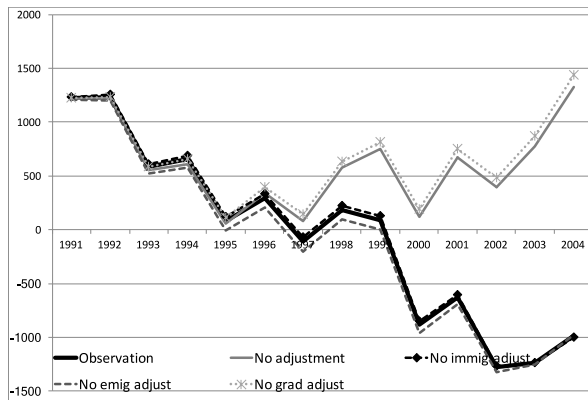
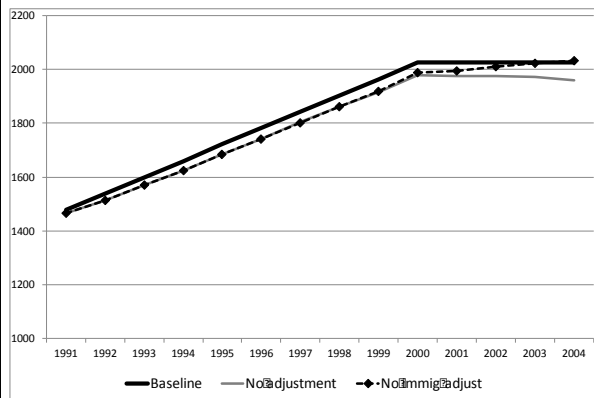


Figure A18: Simulation results for Switzerland

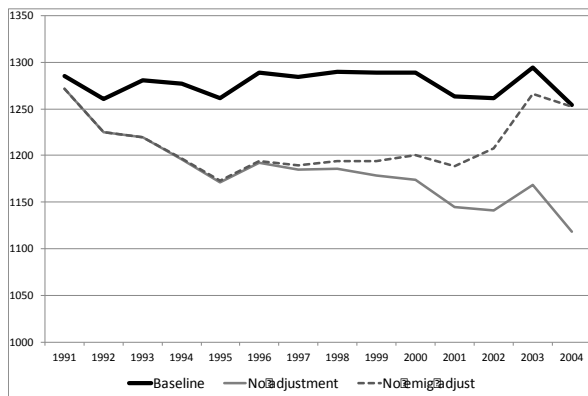
**Figure A18a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A18b: Immigrant physicians in level**



**Figure A18c: scenario 3 - Emigrant physicians in level**



**Figure A18d: Graduated physicians in level**

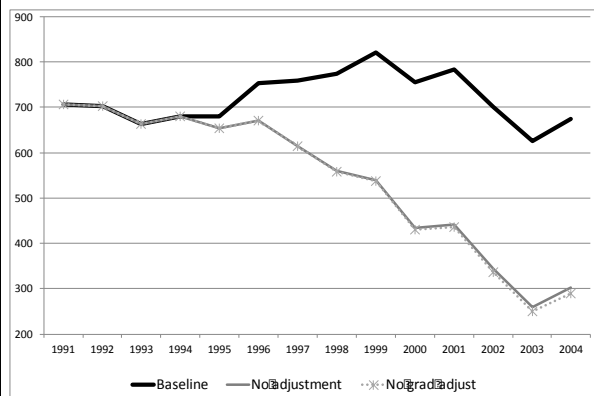


Figure A1: Simulation results for the United Kingdom

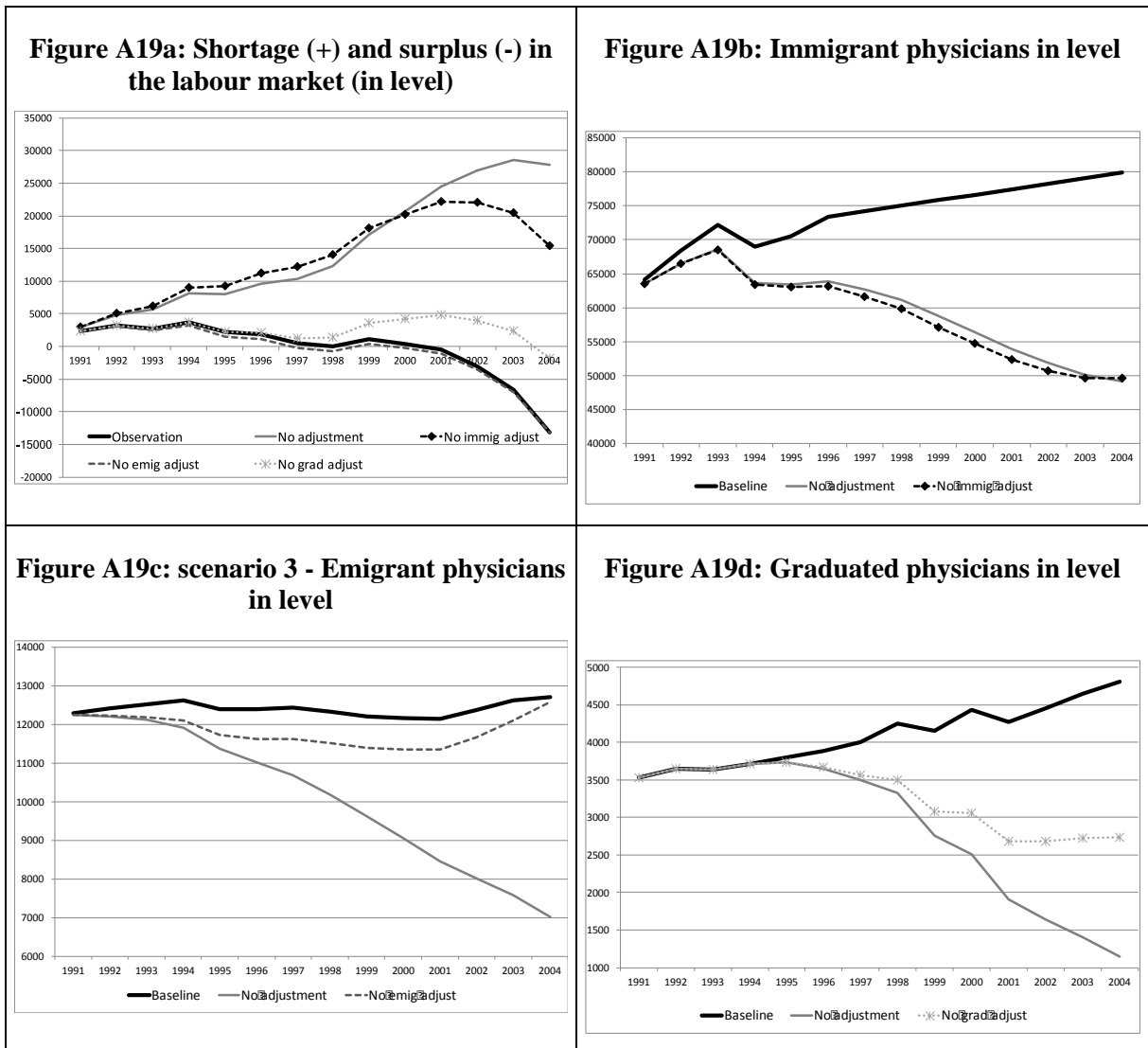
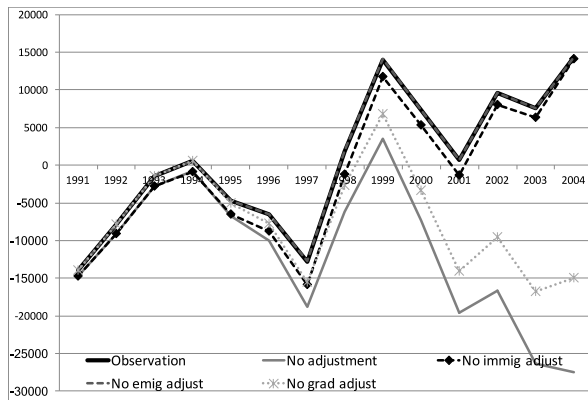
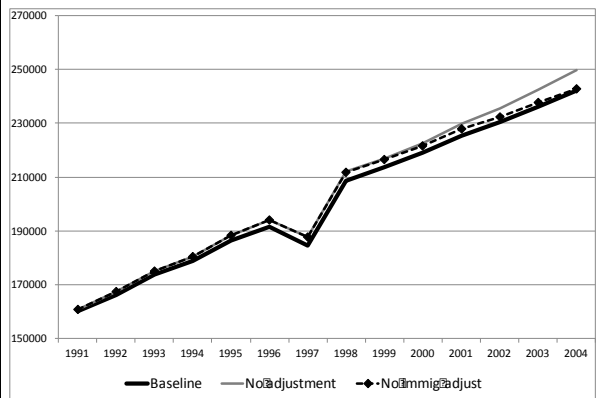


Figure A20: Simulation results for the USA

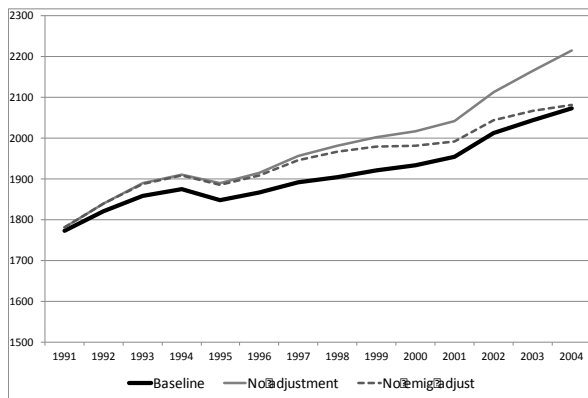
**Figure A20a: Shortage (+) and surplus (-) in the labour market (in level)**



**Figure A20b: Immigrant physicians in level**



**Figure A20c: scenario 3 - Emigrant physicians in level**



**Figure A20d: Graduated physicians in level**

