Zoë Fannon

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Research Fields: Econometric Methods, Applied Econometrics, Demographic Economics

EDUCATION

DPhil Economics **2016 – present**
Somerville College, University of Oxford
Understanding the role of age, period, and cohort in the analysis of individual-level data, supervised by Bent Nielsen, expected June 2020

MPhil Economics **2014 – 2016**
St Cross College, University of Oxford

BA Philosophy, Politics, and Economics (PPE) **2011 - 2014**
Somerville College, University of Oxford

WORK EXPERIENCE

Policy Research and Advice **Jun – Oct 2019**
Directorate for Financial and Enterprise Affairs, OECD, Paris, France
- Econometric analysis in Stata and MATLAB for two projects

Class teacher, Financial Econometrics **Spring 2019, 2018**
MSc Financial Economics, Saïd Business School, University of Oxford
- theory and MATLAB lectures for a class of 50 students over six weeks

Visiting Researcher, DisCont Project **Mar – Jun 2018**
Dondena Research Centre, Università Bocconi, Milano, Italy
- independent research on DPhil thesis (part of DisCont project)
- participated in seminars, participated in and presented at workshop

Co-pilot, Summer Labor Project **Jun – Aug 2015**
(also data team intern, 2014) Locus Analytics, New York City, USA
- joint leadership of a team of interns from diverse disciplines
- analysis of O*Net data using proprietary functional classification scheme

SCHOLARSHIPS, OTHER ACTIVITIES

ESRC 2+2 studentship (fees and stipend) **2014 – 2018**
Oxford Social Sciences Doctoral Training Centre

Econometric Game, University of Amsterdam **Apr 2017, 2016**
University of Oxford team captain (2017), team member (2016)

FURTHER INFORMATION

Citizenship: USA, Republic of Ireland
Languages spoken: English (native), French (CEFR B2, June 2019), Irish (good)
Computer skills: R, Stata, MATLAB, Latex, Microsoft Office

PUBLICATIONS

Fannon, Z. & Nielsen, B. (2019). Age-period-cohort models. *Oxford Research Encyclopedia of Economics and Finance.* Available here: https://oxfordre.com/economics/economics/view/10.1093/acrefore/9780190625979.001.0001/acrefore-9780190625979-e-495

RESEARCH PAPERS

Job Market Paper: Fannon, Z., Monden, C., & Nielsen, B. *Age-period-cohort modelling and covariates, with an application to obesity in England 2001-2014*.

(R&R at Journal of the Royal Statistical Society Series A: Statistics in Society)
Available here: https://oxzf.github.io/JobMarketPaper_DPhilC1.pdf

We develop a framework to study the non-linear effects of age, period, and cohort on an outcome variable, for repeated cross-sectional data with covariates. These non-linear effects of age, period, and cohort are important for economic outcomes like consumption, wages, and health. The framework we develop is suitable for any continuous or binary outcome variable. The age, period, and cohort effects in the model are represented by the canonical parametrization. This parametrization has freely varying parameters because it only separately identifies the non-linear effects of age, period, and cohort, rather than seeking to separately identify their linear slopes. Our framework introduces this parametrization to the repeated cross-sectional setting, and includes a new test of the parametrization against a more general "time-saturated" model. The framework is applied to an analysis of the obesity epidemic in England using survey data. We find that the main non-linear effects present in English obesity data are concavity in age among women and concavity in cohort among men.

Fannon, Z. *apc.indiv : R tools for age-period-cohort models with repeated cross-section data.*

I present apc.indiv, a set of tools for estimation of age-period-cohort models using repeated cross section data in the statistical software R. I use the canonical parametrization of Kuang et al. (2008) to identify non-linearities attributed to each of age, period, and cohort. The apc.indiv package includes tools to estimate models with continuous or binary outcomes, and with or without covariates. It also includes tools to test the age-period-cohort specification against a more general "time-saturated" model. This more general model is of high dimension and so custom algorithms are developed to estimate it. These tools extend the existing R package apc, which allows estimation of age-period-cohort models from aggregate data.

RESEARCH IN PROGRESS

Fannon, Z. *Age-period-cohort models for panel data.*

I develop a model to study non-linearities in age, period, and cohort with panel data. The age, period, and cohort effects in the model are represented by the canonical parametrization. This parametrization has freely varying parameters because it prioritises identification of the non-linearities in age, period, and cohort, and does not purport to identify their unidentifiable linear parts. I adapt the parametrization to three common panel data settings: pooled OLS, random effects, and fixed effects. I show that under the standard assumptions of these settings, age and period non-linearities are identified in all cases, while cohort non-linearities are identified in pooled OLS and random effects settings. I apply the panel data results to study the non-linear parts of the age profile of demand for durables among older British household. I compare my findings to a previous study, which examined the full age profile under an alternative identification strategy.

Bruins, M., Fannon, Z., and Golin, M. *Welfare-to-work programmes and long-run outcomes of recipients' children: Evidence from the UK.*

Welfare for families with dependent children in the UK has changed dramatically over the last two decades, with the main reforms to the tax credit scheme occurring in 1999 and 2003. The effects of these reforms on child outcomes is poorly understood. We address this question by examining how maternal labour supply and income changed at critical stages of child development due to the reforms, and how child outcomes responded to these changes. We instrument for maternal labour supply and income using a range of synthetic measures of welfare policy, the relevant subset of which is selected using Lasso.

De Crescenzio, A., Fannon, Z, and Lepers, E. *Effects of currency-differentiated reserve requirements.*

We evaluate the effects of a central bank policy of currency-differentiated reserve requirements, using a panel of advanced and emerging market economies. Currency-differentiated reserve requirements, whereby the proportion of a deposit received by a commercial bank that the commercial bank must keep in reserve differs depending on the currency of the deposit, are used by several emerging market central banks. The intent is macroprudential, aiming to reduce systemic risk arising when commercial banks have large foreign currency liabilities. The policy changes the relative price of deposit-taking in foreign currency compared to domestic currency and so should have both a substitution effect and an income effect. Through the substitution effect, an increase in the foreign currency reserve requirement should reduce the proportion of assets and liabilities denominated in foreign currency. Through the income effect, an increase in the foreign currency reserve requirement should lead to a reduction in bank credit growth. A possible unintended side effect would be that holders of foreign currency may shift their savings out of the financial sector. This would appear as an increase in non-financial corporation debt growth and credit to the non-financial sector. We investigate these intended and unintended effects using a new quarterly panel dataset of approximately 40 countries over 15 years. We extend the existing literature by considering the magnitude of the change to reserve requirements rather than a simple indicator for policy change.

De Crescenzio, A., Fannon, Z, and Lepers, E. *How important is global investment for local house prices? Results from a factor analysis of house prices among sub-national regions.*

Policymakers are concerned about the effects of international investment on local house price growth. Major cities such as London, Sydney, and Toronto have introduced or are considering introducing measures to limit such investment to reduce pressure on house prices. There is therefore a need to understand the contribution of global factors to local house prices in these and other areas, especially the relationship between house price growth and international investment. We address this need using a new panel dataset of house prices at the level of sub-national regions, roughly equivalent in size to US states, for 26 countries in the post-financial-crisis period. We use a dynamic factor model to estimate common factors in house price growth among these regions. We then use a VAR to compare the factor estimates to measures linked to global investment, such as the return on a global safe asset and a measure of international capital flows.

SOFTWARE IN PROGRESS

Fannon, Z. & Nielsen, B. apc: Age-Period-Cohort Analysis. R package version 1.3.3 (development version).
Available here: http://users.ox.ac.uk/~nuff0078/apc/index.htm

REFERENCES

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