Thursday, 6th of June

12:00-12:50: Registration and Lunch – lecture Theatres 2 and 3 Breakout Space

12:50-13:00: Welcome: Maurizio Zanardi (Head of Economics Department, Lancaster University Management School)

13:00-14:00: Keynote - Franck Portier (University College London) “Real Keynesian Models and Sticky Prices (with Paul Beaudry)”

14:00-14:30: Coffee break

Session 1:

14:30-15:00: Haroon Mumtaz (Queen Mary) - Changing impact of shocks: a time-varying proxy SVAR approach (with Katerina Petrova)

15:00-15:30: Alex Clymo (University of Essex) - Dispersion over the Business Cycle: Productivity versus Demand

15:30-16:00: Tom Holden (German Bundesbank) - The relative price of capital is increasing.

16:00-16:30: Coffee Break

Session 2:

16:30-17:00: Roy Zilberman (Lancaster University) – Macroprudential Interventions in Liquidity Traps (joint with William Tayler)

17:00-17:30: Ferre De Graeve (KU Leuven) - Understanding International Long-Term Interest Rate Comovement (with Michael Chin, Thomai Filippeli and Konstantinos Theodoridis)

17:30-18:00: Agnes Kovacs (University of Manchester) - Temptation and Commitment: Understanding the Demand for Illiquidity

19:00 – Dinner at the Bay Horse

Friday, 7th of June

Session 3:

09:30-10:00: Andrea Colciago (Dutch Central Bank) - Competition and Inequality: Bewley and Aiyagari meet Bertrand and Cournot.
10:00-10:30: Chris Redl (Bank of England) - Uncertainty Matters: Evidence from Close elections

10:30-11:00: Cristiano Cantore (Bank of England, University of Surrey and Centre for Macroeconomics) - Workers, Capitalists, and the Government: The Labor Share Response to Fiscal Spending Shocks (Joint with Lukas Freund and Giovanni Melina)

11:00-11:30: Coffee Break

11:30-12:00: Keynote - Gary Koop (University of Strathclyde) - Regional Output Growth in the United Kingdom: More Timely and Higher Frequency Estimates, 1970-2017 (joint with Stuart McIntyre, James Mitchell and Aubrey Poon)

12:30–13:30: Lunch

Session 4:

13:30-14:00: Federica Romei (Stockholm School of Economics) - Sovereign Default in a Monetary Union (joint with Sergio de Ferra)

14:00-14:30: Sergio de Ferra (Stockholm University) - External Imbalances, Gross Capital Flows and Sovereign Debt Crises

14:30-15:00: Mirko Abbritti (Universidad de Navarra) - Market Regulation, Cycles and Growth in a Monetary Union (with Sebastian Weber)

15:00 – 15:30: Coffee Break

Session 5:

15:30-16:00: Maik Wolters (Friedrich Schiller University Jena) - Reliable Real-Time Output Gap Estimates Based on a Modified Hamilton Filter.

16:00-16:30: Serhiy Stepanchuk (University of Southampton) - Dynamic Perturbation

16:30-17:00: Yifan Li (University of Manchester) - Renewal Based Volatility Estimation (joint with Ingmar Nolte and Sandra Nolte)

19:00: Dinner at the Toll House Inn
Abstracts (in order of presentations):

**Keynote: Franck Portier (University College London) – Real Keynesian Models and Sticky Prices (with Paul Beaudry)**

In this paper we present a generalized sticky price model which allows, depending on the parameterization, for demand shocks to maintain strong expansionary effects even in the presence of perfectly flexible prices. The model is constructed to incorporate the standard three-equation New Keynesian model as a special case. We refer to the parameterizations where demand shocks have expansionary effects regardless of the degree of price stickiness as Real Keynesian parameterizations. We use the model to show how the effects of monetary policy— for the same degree of price stickiness— differ depending whether the model parameters are within the Real Keynesian subset or not. In particular, we show that in the Real Keynesian subset, the effect of a monetary policy that tries to counter demand shocks creates the opposite tradeoff between inflation and output variability than under more traditional parameterizations. Moreover, we show that under the Real Keynesian parameterization neo-Fisherian effects emerge even though the equilibrium remains unique. We then estimate our extended sticky price model on U.S. data to see whether estimated parameters tend to fall within the Real Keynesian subset or whether they are more in line with the parameterization generally assumed in the New Keynesian literature. In passage, we use the model to justify a new SVAR procedure that offers a simple presentation of the data features which help identify the key parameters of the model. The main finding from our multiple estimations, and many robustness checks is that the data point to model parameters that fall within the Real Keynesian subset as opposed to a New Keynesian subset. We discuss both (i) how a Real Keynesian parametrization offers an explanation to puzzles associated with joint behavior of inflation and employment during the zero lower bound period and during the Great Moderation period, (ii) how it potentially changes the challenge faced by monetary policy if authorities want to achieve price stability and favor employment stability.

**Haroon Mumtaz (Queen Mary) - Changing impact of shocks: a time-varying proxy SVAR approach (with Katerina Petrova)**

In this paper we extend the Bayesian Proxy VAR to incorporate time variation in the parameters. A Gibbs sampling algorithm is provided to approximate the posterior distributions of the model parameters. Using the proposed algorithm, we estimate the time-varying effects of taxation shocks in the US and show that there is limited evidence for a structural change in the tax multiplier.

**Alex Clymo (University of Essex) - Dispersion over the Business Cycle: Productivity versus Demand**

In this paper we use rich Swedish micro-data to show that increased dispersion during recessions is primarily a demand-side phenomenon. The key novelty of our analysis is that we use goods-level data on prices to estimate firm-level demand shocks, and production-line-level data on reported capacity utilization to accurately measure firm-level supply (TFPQ) shocks. We document that the dispersion of both TFPQ and demand growth across firms rose during the Great Recession, but that the increased dispersion in TFPQ growth is reduced by up to 1/4 after controlling for capacity utilization. We then
perform a semi-structural variance decom-position exercise for firm-level sales growth. We show that 2/3 of the increased dispersion in sales growth in 2009 is explained by the increased dispersion of demand, while TFPQ dispersion plays essentially no role. Key to this finding is that we estimate a low level of pass through from TFPQ shocks to prices, limiting the ability of increased TFPQ shock dispersion to affect sales dispersion. Consistent with this, we find evidence that demand curves are “kinked”.

**Tom Holden** (German Bundesbank) - The relative price of capital is increasing.

Abstract: “Received wisdom is that the relative price of capital is falling over time. We show this is incorrect. While the price of investment goods in units of consumption goods is falling, the price of capital in units of investment goods is increasing fast enough that the price of capital in units of consumption is also increasing. We build a simple theoretical model to rationalise this finding. Key to this model is the fact that the investment bundle is more skewed towards new products than the capital bundle. Thus, if products start out life with high productivity growth rates, the price of the investment bundle can fall faster than the price of the capital bundle. With the relative price of capital increasing over time, the observed capital-labour complementarity provides an immediate explanation for the decline in the labour share we see in the data.

**Roy Zilberman** (Lancaster University) – Macroprudential Interventions in Liquidity Traps (joint with William Tayler)

We characterize the joint optimal implementation of macroprudential and monetary policies in a New Keynesian model where endogenous supply-side financial frictions generate inflationary credit spreads. State-contingent macroprudential interventions help to stabilize volatile spreads, and substantially alter the transmission of optimal monetary policy under both discretion and commitment. In ‘normal times’, macroprudential policies replicate the first-best allocation. In liquidity traps, financial interventions remove the zero lower bound restriction on the nominal policy rate, thus minimizing output costs following both deflationary (inflationary) demand (financial) shocks. Discretionary and commitment policies with macroprudential taxes deliver equivalent welfare gains.

**Ferre De Graeve** (KU Leuven) - Understanding International Long-Term Interest Rate Comovement (with Michael Chin, Thomai Filippeli and Konstantinos Theodoridis)

Long-term interest rates of small open economies correlate strongly with the US long-term rate. Can central banks in those countries decouple from the US? An estimated DSGE model for the UK (vis-à-vis the US) establishes three structural empirical results. (1) Comovement arises due to nominal fluctuations, not through real rates or term premia. (2) The cause of comovement is the central bank of the small open economy accommodating foreign inflation trends, rather than systematically curbing them. (3) Small open economies may find themselves much more affected by changes in US inflation trends than the US itself.
Agnes Kovacs (University of Manchester) - Temptation and Commitment: Understanding the Demand for Illiquidity

The vast majority of household wealth in the U.S. is held in illiquid form, primarily in housing, which makes households vulnerable to unexpected income shocks. To rationalize preference for illiquidity, we build a life-cycle model of consumption and savings where households are tempted to consume their liquid wealth but can use illiquid housing as a savings commitment device. The importance of temptation and consequently of commitment is identified using data on consumption, liquid and housing wealth accumulation over the life-cycle. Our model matches the empirical portfolio choices and gives rise to a high demand for illiquid housing driven by the need for commitment. This illiquidity has important implications for the consumption response to unexpected income shocks: the model is able to replicate the empirical finding that illiquidity of households' wealth is the main predictor of high MPCs, while providing an explanation for high MPCs even in response to large income shock.

Andrea Colciago (Dutch Central Bank) - Competition and Inequality: Bewley and Aiyagari meet Bertrand and Cournot.

In the last thirty years the US competitive landscape changed markedly. We have observed an increase in the profit share of income, in stock market capitalization over GDP, a reduction in the number of listed firms and a surge in estimated price markups. At the same time, the labor share of income contracted substantially while income and wealth inequality increased. We propose a general equilibrium incomplete markets model with aspects of industrial organization that can jointly explain these trends through an increase in market power due to higher technological entry barriers for new firms. Welfare costs associated with an increase in market power are large and unevenly distributed across households.

Chris Redl (Bank of England) - Uncertainty Matters: Evidence from Close elections

This paper uses a data rich environment to produce direct econometric estimates of macroeconomic and financial uncertainty for the G10. These indices exhibit significant independent variation from popular proxies. Using this new data we control for both first and second moment financial shocks in identifying the real effects of macro uncertainty shocks. We further separate the identified macro shocks from financial shocks using narrative information, requiring that macro uncertainty rises during close elections. These are events which are likely to lead to macro uncertainty but disjoint from a deterioration in financial conditions. We find that macro uncertainty shocks matter for the vast majority of countries and that the real effects of macro uncertainty shocks are generally larger conditioning on close elections. These results are robust to controlling for credit spreads, financial uncertainty, global uncertainty and a measure of the first moment of the business cycle proxied by a composite leading indicator.

Cristiano Cantore (Bank of England, University of Surrey and Centre for Macroeconomics) - Workers, Capitalists, and the Government: The Labor Share Response to Fiscal Spending Shocks - (Joint with Lukas Freund and Giovanni Melina)
Abstract: This paper investigates the effects of government spending shocks on the labor share of income in the U.S. We show that an unanticipated increase in government purchases has a positive effect on the labor share by raising real wages more than labor productivity. These results extend also to Australia, Canada and the UK. Empirics are rationalized using a New Keynesian model that isolates different sources of income by ascribing them to two types of agents: capitalists and workers. In addition, the model features incomplete financial markets assuming segmented bond markets that prevent risk sharing between agents. Simulations replicate empirics well. Finally, we use the model to quantify the impact of the expenditure measures of the 2009 American Recovery and Reinvestment Act on the labor share. When we take the zero lower bound into account, we find a peak effect of 3 percent within the first year, relative to a case of constant government spending.

Keynote: Gary Koop (University of Strathclyde) - Regional Output Growth in the United Kingdom: More Timely and Higher Frequency Estimates, 1970-2017 (joint with Stuart McIntyre, James Mitchell and Aubrey Poon)

Output growth estimates for the regions of the UK are currently published at the annual frequency only, released with a long delay and offer limited historical coverage. To improve the regional database this paper develops a mixed-frequency multivariate model and uses it to produce consistent estimates of quarterly regional output growth dating back to 1970. We describe how these estimates are updated and evaluated on an ongoing, quarterly basis to publish online more timely regional growth estimates. We illustrate how the new quarterly data can contribute to our historical understanding of business cycle dynamics and connectedness between regions.

Federica Romei (Stockholm School of Economics) - Sovereign Default in a Monetary Union (joint with Sergio de Ferra)

After the global financial crisis, sovereign default risk and nominal interest rates close to the zero lower bound have characterized fiscal and monetary policy in the euro area. This paper investigates the interaction between sovereign default and the conduct of monetary policy, when debtors can act strategically and they share a single currency with their lenders. We address this question in a model of a monetary union composed of heterogeneous countries, where the monetary authority may be constrained by the zero lower bound and where sovereign default is endogenous. We uncover three main results. First, default is deflationary and it induces an expansionary response of the monetary authority. This response benefits debtors, who thus have a stronger incentive to default. Second, the zero lower bound limits the ability of the monetary authority to respond to default, and thus it strengthens debtors’ incentive to repay external debt. Third, sovereign default risk induces countries with a preference for tight monetary policy to accept a laxer policy stance. These results help to shed light on the recent European experience of high default risk, expansionary monetary policy and low nominal interest rates.

Sergio de Ferra (Stockholm University) - External Imbalances, Gross Capital Flows and Sovereign Debt Crises

The experience of the European monetary union has been characterized by current account imbalances, widening gross external positions and a severe sovereign debt crisis. I argue that institutional features of the European Economic and Monetary Union have contributed to all three. I
show in a model that subsidies on holdings of euro-denominated assets contribute to current account imbalances, to gross capital flows, and to the severity of the crisis. In a quantitative model with heterogeneous countries, I show that the subsidies account for a substantial fraction of net and gross capital flows in the euro area.

**Mirko Abbritti** (Universidad de Navarra) - Market Regulation, Cycles and Growth in a Monetary Union (with Sebastian Weber)

Abstract: We build a two-country currency union DSGE model with endogenous growth to assess the role of cross-country differences in product and labor market regulations for long-term growth and for the adjustment to shocks. We show that with endogenous growth, there is no reason to expect real income convergence. Large shocks, through endogenous TFP movements, can lead to permanent changes of output and real exchange rates. Differences are exacerbated when member countries have different product and labor market regulations. Less regulated economies are likely to have higher trend growth and recover faster from negative shocks. Results are consistent with higher inflation, lower employment and disappointing TFP growth rates experienced in the less reform-friendly euro area members.

**Maik Wolters** (Friedrich Schiller University Jena) - Reliable Real-Time Output Gap Estimates Based on a Modified Hamilton Filter.

Short Summary: We contribute to the debate regarding the reliability of output gap estimates. As an alternative to the Hodrick-Prescott (HP) filter, we propose a simple modification of the filter proposed by Hamilton in 2018 that shares its favorable real-time properties, but leads to a more even coverage of typical business cycle frequencies. Based on output growth and inflation forecasts and a comparison to revised output gap estimates from policy institutions, we find that real-time output gaps based on the modified Hamilton filter are economically much more meaningful measures of the business cycle than those based on other simple statistical trend-cycle decomposition techniques such as the HP or the Bandpass filter.

**Serhiy Stepanchuk** (University of Southampton) - Dynamic Perturbation

We develop a new algorithm to solve large scale dynamic stochastic general equilibrium models over a large transition. The method consists of Taylor expanding the equilibrium conditions of the model not just around the steady state, but sequentially along the entire equilibrium path. The method can be applied to a broad class of model and is orders of magnitudes more accurate than solutions based on local perturbation of the steady state. The method is also able to solve models with strong nonlinearities. Finally, because our policies are locally linear, we can make use of a version of the Kalman filter with time varying coefficients to identify shocks from data. With this tool in hand we are able to evaluate the likelihood and use the algorithm for estimation of nonlinear models.

**Yifan Li** (University of Manchester) - Renewal Based Volatility Estimation (joint with Ingmar Nolte and Sandra Nolte)
This paper develops the idea of renewal time sampling, a novel sampling scheme constructed from stopping times of semimartingales. Based on this new sampling scheme we propose a class of volatility estimators named renewal based volatility estimators. In this paper we show that: (1) The spot variance of a continuous martingale can be expressed in terms of the conditional intensity or conditional duration density of renewal sampling times; (2) In an infill asymptotics setting, renewal based volatility estimators are consistent and jump-robust estimators of the integrated variance of a general semimartingale; (3) Renewal time sampling and range-based sampling have a higher sampling efficiency than equidistant return-based sampling.