UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF ECONOMICS
530 EVANS HALL #3880
BERKELEY CA 94720-3880
TELEPHONE: (510) 642-0822
FAX: (510) 642-6615

11/30/2016

National Bureau of Economic Research
Post-Doctoral Fellowship Program

To the selection committee:

In light of my application to the same post-doctoral fellowship that I opted to decline last year, I would like to provide the committee with an explanation for my decision then, as well as with my reasoning for re-applying this year.

Unfortunately, last year I received no sufficiently strong academic offers that could follow the one-year post-doctoral fellowship. Given the short duration of the fellowship and the timing of the junior job market, accepting the fellowship without a corresponding full-time position immediately after would have been risky, and provided limited opportunity to prepare a different job market package in time for the new season. In tandem, I took into account my partner's location constraints in the Bay area - it would have been difficult to justify a joint move for an opportunity across the country of uncertain (and potentially very short) duration. Thus, I decided at the time that it was preferable (both from a professional and personal perspective) to accept Cornerstone Research's offer in San Francisco.

However, I have come to realize that this was not the best career choice for me, and I am now looking to pursue a path that is more in line with my public finance and macro research interests. Hence, I am re-applying this year to several academic and research-oriented policy institutions that can facilitate that pursuit. While I cannot guarantee at this point that I will receive a full-time offer that would make the one-year post-doctoral position a clearly dominant choice, should that be the case, I would love to join the other researchers at the NBER next year and work on the project described in my proposal.

Please do not hesitate in contacting me should there be any additional questions you feel I have not clarified.

Thank you for your consideration of my application. I look forward to your response.

Sincerely,

Maria Coelho

UNIVERSITY OF CALIFORNIA, BERKELEY
DEPARTMENT OF ECONOMICS

Maria Coelho
mcoelho@econ.berkeley.edu
http://econgrads.berkeley.edu/mcoelho/

HOME ADDRESS:
Department of Economics
530 Evans Hall, #3880
Berkeley, CA 94720-3880
Mobile/Cell: (347) 515-1730

DESIRED RESEARCH AND TEACHING FIELDS:

PRIMARY	SECONDARY
Public Finance, Macroeconomics, Financial Economics	International Finance, Applied Econometrics

FIELDS OF CONCENTRATION:
Public Finance, Macroeconomics

DISSERTATION TITLE: "Fiscal Policy in a Financially and Economically Interconnected World: Essays on Financial Sector Taxation and Regional Public Expenditure"

Date of Completion:	August 2016
Principal Advisor:	Alan Auerbach
Other References:	Yuriy Gorodnichenko, Emmanuel Saez

PRE-DOCTORAL STUDIES:

	DEGREE	DATE	FIELD
Columbia University, Columbia College	B.A. *Summa cum laude*, ΦBK	2007	Economics-Political Science (Honors)

PROFESSIONAL EXPERIENCE:
Associate, Cornerstone Research (2016)
Ph.D. Intern, European Central Bank (2013)
Research Assistant, International Monetary Fund (2008-2010)
Debt Capital Markets Analyst, HSBC Bank (2007-2008)

RESEARCH:
Research Assistant to Prof. Pierre-Olivier Gourinchas, Dept. of Economics, UC Berkeley (2012-2013)
Research Assistant to Prof. Christina Romer and David Romer, Dept. of Economics, UC Berkeley (2011)

TEACHING:
Graduate Student Instructor, Dept. of Economics, UC Berkeley
Topics in Economic Research (Prof. Farrell – Fall 2014)
Teaching Assistant, Dept. of Economics, Columbia University
International Trade (Prof. Harrigan – Fall 2006)
Global Economy (Prof. Gulati – Spring 2007)

PUBLICATIONS:
"Weathering the Financial Crisis: Public-private Partnerships and the Government Response", co-authored, *in* The Routledge Companion to Public-private Partnerships, London, 2013.

"The Effects of the Financial Crisis on Public-Private Partnerships", co-authored, IMF Working Paper No. 09/144, July 2009.

PAPERS:
"Dodging Robin Hood: Responses to France and Italy's Financial Transaction Taxes"

Abstract: This paper analyzes the effect of the introduction of financial transaction taxes in equity markets in France and Italy in 2012 and 2013, respectively, on asset returns, trading volume and market volatility. Using two natural experiments in a difference-in-differences design, I identify bounds on elasticity estimates for three categories of avoidance channels: real substitution away from taxed assets, retiming (anticipation of transaction realizations and portfolio lock-in), and tax arbitrage (cross-platform and financial instrument shifting). I find very large responses on all margins that account for as much as 60% of the reported revenue shortfalls. By far the strongest behavioral response comes from high-frequency trading lock-in on regulated exchanges, with a high tax elasticity in the order of -9. In contrast, real substitution from taxed assets (measured by capitalization of tax costs in the short-run) is substantially smaller than would have otherwise been predicted by simple exogenous trading frequency models. Cross-border trading migration –

formerly recognized as a major channel of evasion for these types of taxes, no longer seems to be a characteristic phenomenon, given broader opportunities for avoidance. The results shed light on overlooked features of optimal FTT design.

"Fiscal Stimulus in a Monetary Union: Evidence from Eurozone Regions"

Abstract: This paper contributes to the open economy local fiscal multiplier literature by estimating regional output and employment responses to federal expenditure shocks in the European Union. In particular, similarly to the literature on foreign aid and growth, I use shocks to the supply of federal transfers (European Commission commitments) of structural fund spending by subnational region as instruments for annual realized expenditure in a panel from 2000-2013. I find a large, contemporaneous multiplier of 1.7 which translates into a cumulative multiplier of 4 three years after the shock. Furthermore, using a novel dataset on bilateral trade between EU regions, I find evidence of demand-driven spillovers up to three years after a shock.

IN PROGRESS:

"Dynamic and Cross-Platform Optimal Financial Transaction Taxation"

FELLOWSHIPS AND AWARDS:

2016	Klaus Liebscher Award
2015	UC Berkeley Doctoral Completion Fellowship
2015	Burch Center for Tax Policy and Public Finance Fellowship
2010-2015	Pinto-Fiallon Graduate Fellowship
2014	Best Paper Prize, Oxford University Centre for Business Taxation Doctoral Meeting
2014	Young Economist Award, International Institute of Public Finance
2010-2014	Fundação para a Ciência e Tecnologia Doctoral Fellowship
2013	George Break Prize in Public Finance
2007	Caroline Phelps Stokes Prize in the Rights of Man
2006	Phi Beta Kappa Society

PRESENTATIONS:

2016	UCLA Anderson, University of Toronto, University of Sydney, Federal Reserve Board, Luxembourg School of Finance, Warwick University, London School of Economics, CEMFI, IESE, INSEAD, University of Michigan Public Finance Seminar
2015	ZEW Public Finance Conference (declined), European Economic Association meeting (declined), US Department of the Treasury – Office of Tax Analysis, Public Finance & Macroeconomics seminar – UC Berkeley
2014	MAYBE Workshop (University of Mannheim), Euroframe, International Finance and Banking Society, International Institute of Public Finance Annual Congress, Oxford University Centre for Business Taxation Doctoral Meeting

OTHER INFORMATION:

Referee service:	Journal of Public Economics
Affiliations:	American Economic Association, American Finance Association, European Economic Association
Languages:	Portuguese (native), English (fluent), Spanish (proficient), French (intermediate), German, Italian, Arabic and Russian (beginning)
Citizenship:	Portugal

NBER Post-Doctoral Fellowship on Long-Term Fiscal Policy

Research Proposal: Financial Sector Taxation, Credit Provision and Economic Growth

Maria Coelho

The increasing degree of financial-macro linkages in advanced economies as demonstrated by the recent Great Recession raises new challenges for fiscal policy making, in that it expands the potential impact of both tax and expenditure reforms through unchartered channels. Recent work on the redistributive channel of monetary policy (Auclert (2015)) and the impact of household leverage on real output (Mian and Sufi (2011); Mian et al. (2015)) highlight some of these issues, which are exacerbated by behavioral responses of financial sector agents, households and firms. We know that financial expansion/contraction affects output growth both directly through its intermediation role of consumption, savings and investment, but also indirectly by exacerbating existing income inequality across households and misallocation of resources across firms. Agarwal et al. (2015)'s finding that since 2008 banks passed credit expansions to consumers whose spending was most unresponsive to credit availability (thereby amplifying inequality in borrowing constraints, while perpetuating weak aggregate demand) illustrates the importance of heterogeneity in evaluating the role of the financial sector as a driver of aggregate economic growth.

Higher household debt to GDP ratios in particular have also been recognized as a driver of lower long-term potential output - as emphasized further below. (Mian et al. (2015)) find that this type of financing is predictive of lower global output growth, since generalized household leverage inhibits strong current account adjustments for any individual country during recessions. Furthermore, higher borrowing associated with a rise in consumption/decrease in savings translates into lower capital investment and accumulation, which in turn is a key source of lower rates of long-term output growth in classic growth models in the absence of external financing. Thus, at a net global level, savings are a critical determinant of potential output growth. On the corporate front, tighter constraints on domestic and external financing (whose costs can be distorted by asymmetric taxation of loans or foreign capital inflows, for example) can curb long-term investment by firms and thereby long-term economic growth (Rajan and Zingales (1998); Aghion et al. (2005)).

At the same time, there has been a renewed emphasis in the literature on macroeconomic

stabilization through fiscal policy, especially under constrained monetary policy conditions. Likewise, macroprudential policies - such as balance sheet restrictions, countercyclical capital requirements and Pigouvian taxation - have become a vital part of the policy toolkit in advanced and emerging economies alike, aimed at reducing the prociclicality of the financial sector and systemic risk. This cyclical volatility in turn has been associated with lower long-run growth in empirical studies (Ramey and Ramey (1995); Aghion et al. (2014)).

The present research proposal is motivated by the combination of these currents. In particular, I would like to focus on the role of fiscal policy as a long-term growth stimulus and short-term stabilization tool through taxation of a range of capital access/financing channels.

Building on work I have developed in my job market paper - where I look at the impact of financial transaction taxes on public equity market activity -, I would like to dive further and evaluate the differential impact of taxation on public debt access (bonds), domestic capital transfers, credit to non-financial corporations, and household borrowing (such as mortgage loans), among others. In particular, the key question I am interested in answering is *how different types of financing* (household vs corporate, credit vs equity) have *responded to changes in their taxation over time*, and to what extent that variation can account for the differential patterns of *long-term growth rates* and business cycle volatility we observe across countries. The answer to this question is critical for the design of both future macroprudential tax policy (aimed at stabilizing economic growth) and development oriented policies (aimed at fostering long-run productive capacity). For example, if curbing the expansion of household credit through fiscal instruments is welfare enhancing, learning whether this type of credit is responsive to tax incentives, and if so, by how much, will help us assess the optimality of such policies relative to alternative tools.

A recent report by Cournede et al. (2015) suggests that slower long-term GDP growth is typically associated with overexpansions of bank lending, but less so with bond financing. Similarly, in line with the findings of Mian et al. (2015), a high proportion of household credit relative to business credit seems to be detrimental to long-term growth in their sample, as seen in Figure 1.

In addition, there is evidence that the distribution of household credit is more skewed towards top income quintiles than the distribution of disposable income itself (Denk and Cazenave-Lacroutz (2015)). Credit tends to accentuate the role of income inequality in dragging down

growth, especially over recessionary periods of the business cycle, where contractions in employment and credit are both stronger at the lower end of the distribution. Since the marginal propensity to consume out of disposable income is negatively correlated with the income distribution, progressive household credit taxation should in theory be an even more effective fiscal stimulus tool than its income counterpart. In practice, however, the literature has still not tested this hypothesis.

Methodologically, answering the question above involves collecting data on tax laws over a variety of financing channels historically across countries, the respective stocks and changes of each financing type, and macroeconomic growth variables. A combination of dynamic panel data estimation and event studies can then be used for identification of the tax elasticities of interest. There are considerable differences both across countries and over time in the types and magnitudes of taxes applied to financing activities, which ensures empirically a rich source of treatment variation. For example, Brazil had a 3% tax rate on bank loans until 2008, then cut in half. In contrast, Chile taxes bond issuance, rather than bank credit, between 0.1-1.2%. For smaller samples, even clearer variation solely along the financial taxation margin is available: in Australia, stamp duty applicable to loans, bonds and private equity is determined at the state level; in New South Wales, the transfer of non-listed shares of a company is subject to a 0.6% tax, but a similar tax was abolished in the state of Victoria in 2003. Abolishing the stamp duty in the absence of a federal tax on transactions of listed shares implies a now relatively lower cost of accessing equity financing through private capital markets in Victoria. Also in the same state, mortgages were subject to a stamp duty through 2004. And so on.

The reform of financial sector taxation and role of fiscal adjustment in promoting long-term sustainable growth have been two key sets of policy responses enacted in the aftermath of the latest financial crisis and recession - the effects and optimal design of which we still know relatively little about. In this research project, I intend to evaluate the impact of these actions on aggregate welfare and growth, with direct implications for future policy evaluation and design. The latter include the development of comprehensive global financial regulation, the characterization of banking and fiscal unions in the Eurozone, and the incorporation of financial markets into new macroeconomic and fiscal policy making in developing and advanced economies alike.

References

Agarwal, Sumit, Souphala Chomsisengphet, Neale Mahoney, and Johannes Stroebel, "Did Credit Expansion Spur Consumer Spending in the Great Recession?," NBER Working Papers 21567, National Bureau of Economic Research, Inc September 2015.

Aghion, Philippe, David Hmous, and Enisse Kharroubi, "Cyclical fiscal policy, credit constraints, and industry growth," *Journal of Monetary Economics*, 2014, *62* (C), 41–58.

_ **, George-Marios Angeletos, Abhijit Banerjee, and Kalina Manova**, "Volatility and Growth: Credit Constraints and Productivity-Enhancing Investment," Working Paper 11349, National Bureau of Economic Research May 2005.

Auclert, Adrien, "Monetary Policy and the Redistribution Channel," 2015.

Cournede, Boris, Oliver Denk, and Peter Hoeller, "Finance and Inclusive Growth," OECD Economic Policy Papers 14, OECD Publishing June 2015.

Denk, Oliver and Alexandre Cazenave-Lacroutz, "Household finance and income inequality in the euro area," OECD Economics Department Working Papers 1226, OECD Publishing June 2015.

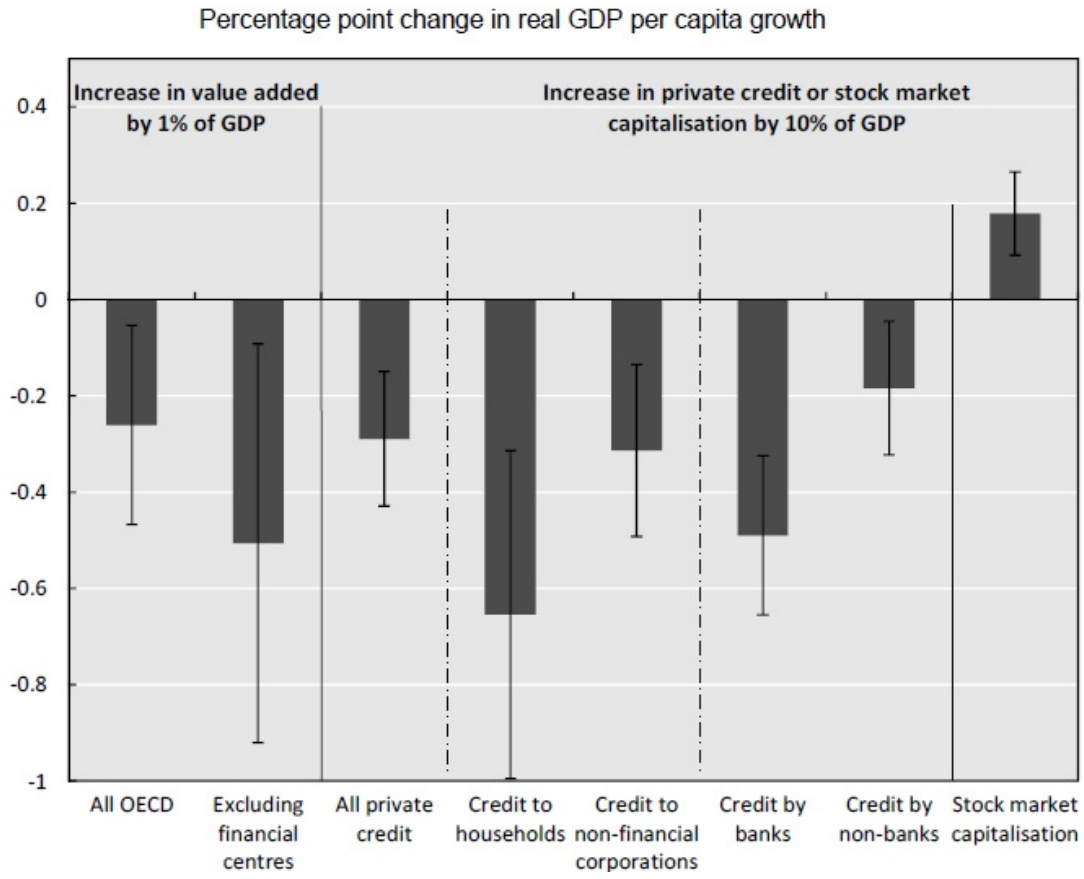
Mian, Atif and Amir Sufi, "House Prices, Home Equity-Based Borrowing, and the US Household Leverage Crisis," *American Economic Review*, August 2011, *101* (5), 2132–56.

Mian, Atif R., Amir Sufi, and Emil Verner, "Household Debt and Business Cycles Worldwide," NBER Working Papers 21581, National Bureau of Economic Research, Inc September 2015.

Rajan, Raghuram G and Luigi Zingales, "Financial Dependence and Growth," *American Economic Review*, June 1998, *88* (3), 559–86.

Ramey, Garey and Valerie A Ramey, "Cross-Country Evidence on the Link between Volatility and Growth," *American Economic Review*, December 1995, *85* (5), 1138–51.

Figure 1: Different forms of financial expansion have contrasting effects on growth at the margin



The figure shows point estimates surrounded by 90% confidence intervals. All private credit uses different data than the decompositions by borrower (Credit to households and to non-financial corporations) and by lender (Credit by banks and by non-banks) and should therefore not be viewed as a weighted average. Source: Cournede et al. (2015)

UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

ALAN J. AUERBACH
ROBERT D. BURCH PROFESSOR OF ECONOMICS & LAW
auerbach@econ.berkeley.edu

DEPARTMENT OF ECONOMICS
530 EVANS HALL #3880
BERKELEY CA 94720-3880

November 21, 2016

To Whom It May Concern:

I am writing on behalf of Maria Coelho, who just completed her Ph.D. in Economics at Berkeley and is applying for a position in your institution. It is a pleasure to do so.

I have known Maria for several years, having met her before she began her graduate studies while she was working at the IMF and attended my lectures there. At Berkeley she excelled as a student in my public finance class (winning the award given annually to the top student in our two-course field sequence), and worked on her dissertation under my supervision. She possesses all of the important attributes for success and leadership as a scholar. In addition to her intelligence and training, she has deep intellectual curiosity, is very organized and disciplined, and has a drive to get things done. She produced three interesting papers for her dissertation, in the macro/finance area of public finance. In part for personal reasons, she took a private sector job upon completing her dissertation this past summer, but now wishes to pursue opportunities that will allow her to continue her work as a scholar and to make better use of her talents.

Maria's dissertation research focuses on European economic developments, although the results are more generally relevant. One of her job market papers is an empirical assessment of the effects of financial transaction taxes (FTTs) adopted recently in France and Italy. Understanding the effects of such taxes is of significant policy relevance, as many countries have adopted or have made commitments to adopt FTTs in reaction to the recent global financial crisis, and they were proposed for the United States by one candidate (Bernie Sanders) in the recent presidential contest. But their desirability remains quite controversial. Though their intellectual origin may be traced to a proposal by Tobin (and hence the term "Tobin tax" that is sometimes applied) as a means for dampening unproductive speculation and reducing asset price volatility, they also have the potential to reduce market efficiency and increase the cost of capital, and their impact on volatility itself is by no means clear. Yet, because adoption of significant FTTs is a quite recent phenomenon, we have little relevant empirical evidence.

In writing her paper on the subject, Maria familiarized herself with the detailed provisions of the French and Italian FTTs, and uses patterns in the two countries, as well as differences in these patterns, to apply event-study techniques to estimate impacts on asset prices, trading volume, asset price volatility, and behavioral responses on various margins. While the taxes did have some negative effects on asset prices, the effects were relatively small, consistent with very large behavioral responses, which include not only reduced trading but also shifting of trading across

platforms that were subject to different tax rates. The behavioral responses help explain why the taxes raised less revenue than the adopting governments had predicted. Also, there is little evidence of the taxes reducing asset price volatility.

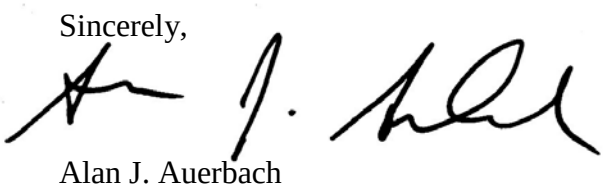
Motivated by this evidence, Maria has gone on, in a second paper, to model theoretically the behavioral responses to FTTs, extending a model developed recently by Davila to allow a retiming of trading as well as a shifting of trades between listed and over-the-counter markets. In this model, FTTs can have both positive and negative welfare effects, as some trading (due to differences in beliefs) is unproductive while other trading (due to differences in hedging needs) is productive. Maria analyzes the effects of FTTs on trading in this model, and also derives expressions for optimal taxes for a variety of cases (e.g., to deal with the trading externality; to minimize distortions absent the externality but with a fixed government revenue need, etc.) and expresses these results in a way that uses the behavioral responses estimated in her first paper as "sufficient statistics." The analysis in the paper is technically quite challenging and also yields new insights about the ways in which FTTs can affect welfare. For example, going back to the work of Domar and Musgrave and the related literature that followed, we normally think of taxes on risky assets as being potentially welfare improving to the extent that returns are not efficiently pooled through private trading. However, FTTs work in the opposite direction, as they reduce the extent to which individual investors hedge idiosyncratic risks. If such hedging is incomplete in the absence of an FTT, the introduction of even a small FTT imposes a first-order welfare loss due to a worsening of the allocation of risks.

Together, I believe that these two papers push forward substantially our understanding of the effects of FTTs. Given the current interest in such instruments among policy makers and advocacy groups, I expect this research to receive considerable attention.

In her third dissertation paper, Maria analyzes the effects of regional fiscal transfer programs within the European Union. Her familiarity with this program of transfers arose from her work in 2013 as a Ph.D. intern at the European Central Bank. Even though the EU is still largely just a federation of independent economies with a central bank but little else of an economic nature that is centralized, it does provide fiscal transfers to help support government infrastructure spending, particularly in less developed regions of the EU. Using data she was able to acquire from the European Commission, Maria develops an empirical strategy to see whether changes in the levels of fiscal transfers have a significant effect on regional economic activity. The strategy of using fiscal transfers to regions to identify fiscal shocks involves using more aggregated data on annual commitments as instruments for annual fiscal transfers in panel IV estimation, to overcome measurement error (the annual transfer series are derived via an imputation process) as well as the concern that some of the changes in fiscal transfers are demand-driven and hence endogenous. Her results indicate a quite sizable effect of fiscal transfers on regional economic conditions. In addition to these main results, Maria has also addressed the question of whether such transfers have important fiscal spillovers, a reasonable possibility given the close economic linkages of some of the individual regions. She finds significant positive spillovers using a weighting of shocks based on trade linkages, and suggests that this may help explain the large direct multiplier effects, given the possibility that fiscal shocks across regions are positively correlated. This paper is an important contribution to the literature, much of it very recent, on the effects of discretionary fiscal policy on economic activity – an issue about which we wished we knew much more when the recent worldwide recession began. Maria has just informed me that the paper has been awarded this year's Klaus Liebscher Award from the Austrian Central Bank, bringing with it an invitation to present the paper in Vienna next month.

As I hope this brief summary indicates, Maria Coelho has developed into an outstanding scholar. Indeed, in addition to the award just mentioned, her work has already received significant recognition through awards at conferences at which she presented it, sponsored by the International Institute for Public Finance and the Oxford Centre for Business Taxation. In recent years, our department has produced several excellent students in the area of public finance and fiscal policy, and Maria is another in this tradition, although her interests also include finance and empirical macroeconomics. Her qualifications and the focus of her research make her an extremely strong candidate, and her wide-ranging interests and engagement suggest that her work will span many areas and make her an excellent colleague. I am happy to recommend her very strongly to any institution.

Sincerely,



Alan J. Auerbach