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To whom it may concern:

I am writing in support of my student and coauthor Elliott Ash, who is on the job market this year. Elliott is an amazing applied researcher, with great ideas, fast execution and super rigorous and innovative technical skills. His papers contribute (and significantly so in my opinion) to the political economy literature as well as to law and economics long standing debates. Moreover, his new ideas on the use of machine learning are opening important policy research agendas. To anticipate my summary evaluation, I consider him the best prepared and most innovative empirical researcher among all the graduate students I have ever interacted with, in all capacities, and I believe he should be seriously considered by all top departments of economics, political science and even law.

He has been my student in two graduate classes at Columbia and we have coauthored a paper now under review, plus he has helped me in multiple occasions even with my own other papers. Therefore I can say that I know him very well on multiple sides of our professional skills profile, namely both on the delivery side (writing and presenting his own work) and on the production side when working together on the paper. Bentley Macleod had exactly the same opportunity and pleasure, and so probably Bentley and I will write fairly similar things on our experience with him.

The most recent paper by Elliott is “Tax Laws and Fiscal Capacity: A Data-Driven Approach to Tax Policy Design.” He has constructed an enormous data set that includes all texts of taxation laws across the 50 States for roughly 50 years, and proposes an innovative machine learning procedure to analyze the impact of legal text and precision on tax capacity, i.e. on the ability of a State to collect as tax revenue as much as possible of the predicted

one, minimizing tax avoidance. The Bartik-style instrumental variable approach is convincing, and the use of principal component analysis to reduce the multi-dimensionality of the texts seems well grounded also on political science and law qualitative knowledge of institutions. He finds that phrases like "collect revenue" correlate positively with tax capacity whereas "anticipated revenue" correlates negatively, and many other examples can be found by looking at the panels and tables in the phrases substitution section (and previous section to that in the paper). Most impressive is, in my opinion, the potential quantitative relevance of these findings at the policy level: employing a very conservative set of restrictions on which type of automated phrase substitution to program in the computer, allowing at the end only roughly 2% of phrase substitutions, the potential change in tax revenues collected is very large. The political economy implications of the paper are also very interesting: He analyzes the role of tax law language in state fiscal politics using changes in political control of state legislatures. He estimates RD regressions for the effect of Democratic control on the tax law text features, showing that there is no effect of Democrat control on the tax rate. However, there is a systematic effect on the language chosen in tax legislation. For corporate and income taxes, Democrats choose revenue-increasing language. For sales taxes, Democrats choose revenue-decreasing language. Corporate and income taxes are relatively progressive, while sales taxes are regressive. The use of revenue-increasing language by Democrats on progressive taxes but revenue-decreasing language on regressive taxes is consistent with Democrats implementing a more redistributive fiscal policy through tax laws. Tax laws defining the base – rather than the tax rate – are the key policy tool in the political economy of fiscal policy in the U.S. states. As he points out in the concluding remarks, this paper not only provides a very detailed positive analysis of which texts lead to more effective laws, but also suggests more generally that a similar machine learning technology could be used also to determine which types of laws are better for crime reduction and contract enforcement. Thus, this may be viewed as a fundamental paper, not only for the specific contributions to public economics and law design methodology but also as research agenda opening in law and economics more broadly.

The working paper "The Performance of Elected Officials: Evidence from State Supreme Courts" provides a well identified study of the quality of judges (measured not only in production and length of decisions but most impor-

tant in terms of citations from subsequent judges and courts, in and out of State) as a function of the different types of institutions within the United States. The strong results suggest that meritocratic appointment institutions deliver significantly higher quality than elections, and within the set of judges that are elected the better ones are those elected in non partisan elections. Similar consistent results are also derived with respect to other institutional variations that relate to reelection incentives, like the length of tenure and competitiveness. Clearly this is a strong result about the sensitivity of selection of high quality judges to institutional variation and against the system of having elected judges. It is indeed a problem of selection, rather than moral hazard, because their previous paper, published on the Journal of Law and Economics, provides strong evidence that appellate judges are intrinsically motivated and care about the quality of decisions.

Another paper where one can see the wide applicability of natural language analysis in political economy is the paper that Elliott and I have coauthored with Richard van Weelden at Chicago, "Elections and Divisiveness, Theory and Evidence." The theory suggests that when incumbent politicians decide how to allocate time, effort and resources across different policy issues or dimensions, they consider the value of their effort allocation for the probability of re-election, and as a result they have a tendency to posture: they put excessive effort on divisive issues on which voters are sensitive to signaling. Then we also show that this incentive to posture increases when effort allocation is more transparently observed, with respect to the benchmark case in which voters observe only outcomes if and when they materialize. For the empirical test we use the US Senate staggered elections, comparing behavior of the senators up for re-election (fifth and sixth year) with that of all other senators, using the text of the entire US Congressional record. For the House, on the other hand, we use a geographic identification strategy also used in previous work, but the observed variable is again the text of all speeches. Using Elliott's expertise in natural language processing, we have been able to confirm that the incentive to posture is real and strong, and even the changes determined by transparency reforms go in the direction suggested by the theory. Our next project will probably be on the empirical evaluation of posturing incentives in parliamentary democracies.

Finally, Elliott has recently completed a very interesting public finance paper, showing that property tax rates in the US are very likely to be too low. He

focuses on 308 tax districts, in three American States, where the dates for property value reevaluation had been decided long ago, and staggered, so that in every given period each of the three States has a practically random fraction of tax districts in which property values are updated. He finds that any upward property reevaluation increases significantly not only tax revenue but also a number of economic indicators, including business creation and individual economic variables in the tax district, controlling for the direct benefits coming to individuals from the direct housing value update. Given that the discussion on property taxes and wealth taxes is very hot these days in Europe, his finding for US States could actually lead other researchers to replicate and confirm the finding also for some European countries.

To conclude, Elliott managed somehow to learn a lot in these few years, both within economics and outside economics, and he is pushing the frontier in at least three or four different directions – , something very impressive for someone who just started his career. I have had other good students who placed well in the past, but nobody was so fast and independent in his work, hence I can say with confidence that he is one who could easily build up tenure evaluation material even sooner than the normal length of a tenure clock. His work ethics and productivity reminds me that of Guillaume Frechette and Petra Persson. Therefore I strongly recommend him to any department without reservations, and without any fear that he might not deliver on his promise.

Yours sincerely,



Massimo Morelli