# Default Costs, Self-fulfilling Debt Crises and Macroprudential Policies

Research Proposal

Anna Sokolova

December 1, 2016

**Keywords**: open economy, capital flows, debt, default, renegotiation
**JEL Codes**: *F34, G15, G18*

Sovereign defaults should cause welfare losses—otherwise sovereign borrowing would not be possible. Empirical literature supports this view, providing evidence that defaults lead to capital market exclusion, output losses (see De Paoli et al. 2006, Sturzenegger 2004), fall in FDI flows (see Fuentes and Saravia 2010) and reduction of foreign credit to the private sector (see Arteta and Hale 2008). Theoretical models of sovereign default relate these default costs to the probability of sovereign debt repayments, asserting that the higher the costs, the lower the probability of default.

In this project I would like to revisit the link between default costs and the risk of default and show that the connection is not as straightforward as commonly believed. I intend to use a general equilibrium framework to demonstrate that an increase in perceived default costs may induce capital outflow, reduce capital investment and cause a decline in output, making default inevitable. Therefore, higher default costs do not necessarily imply lower costs of sovereign borrowing and high probability of repayment.

This research plan is motivated by the following considerations. Because the majority of studies document a negative correlation between sovereign risk and GDP growth, the theoretical literature on sovereign defaults treats this correlation as a stylized fact (see Aguiar and Gopinath 2006, Arellano 2008, Mendoza and Yue 2012). There is, however, some evidence suggesting that defaults do not always happen in 'bad' times (Tomz and Wright 2007) and when they do, defaults are followed by economic recovery (Yeyati and Panizza 2011)[1]—evidence that is at odds with a common premise of theoretical literature on defaults: that higher default costs ensure low probability of default. Within this project I plan to propose theoretical underpinning of these observations.

[1] Reinhart and Rogoff (2011) obtain similar results for the domestic debt, showing that, while defaults happen when output is below trend, the event of default is on average followed by output growth.

## The Model

I plan to carry out the above research plan by building a general equilibrium model of a small open economy with incomplete markets. The model would consist of households that choose consumption, investment and labor supply, firms that hire capital and labor to produce output, government that issues sovereign bonds, collects taxes and provides transfers, and foreign risk-neutral investors that buy sovereign debt. The goal of the fiscal policy is to smooth households' consumption profile. At any point the government may choose to default, but a default on sovereign debt would cause a productivity loss for the firms.[2]

I anticipate that this model would give rise to multiple equilibria. In the 'good' equilibrium households perceive the probability of default as low, and invest domestically. High domestic investment yields high capital and output in the next period. The government compares costs and benefits of default and rationally decides to repay, thereby validating the initial expectation of default being unlikely. In the 'bad' equilibrium households see the probability of default as high. Because default leads to a reduction in capital productivity, households choose to save by buying foreign assets rather than investing domestically. This yields lower capital and output in the subsequent period, and the government that collects capital and labor taxes does not generate enough revenue to service the debt and is forced to default. This validates the original pessimistic expectation about the low probability of repayment.

## Policy Implications

I expect that in this model the 'bad' equilibrium will be suboptimal: it is associated with lower domestic productivity and lower households' welfare. The atomistic households are unable to coordinate between the two types of equilibria, as their decisions over how much to invest domestically and abroad are decentralized. This feature gives room for pareto improvement through macroprudential regulation. This logic suggests that all policies affecting the return on foreign assets would affect the government bond price as well. I expect that policies that tax cross-border capital flows will be welfare-improving, as they can urge households to invest more domestically and prevent the 'bad' equilibrium from realizing. Furthermore, arrangements that make perceived default costs lower (e.g. a formal or informal agreement to reeive financial aid from the third party) may also be pareto-improving.[3]

[2] This assumption is in line with the model of Mendoza and Yue (2012), in which default tightens liquidity constraints for the firms, forcing them to alter the structure of inputs and replace prepaid inputs with less efficient substitutes.

[3] In the first stages of the project I intend to abstract from considerations related to the moral hazard problem.

## Relation to Literature

This research plan is connected to the literature on self-fulfilling debt crises that includes contributions by Cole and Kehoe (1996), Cole and Kehoe (2000), Lorenzoni and Werning (2013), Conesa and Kehoe (2015). The two distinctive features of my proposal are the following. First, I will show that in this setup the multiplicity of equilibria arises precisely because the default costs are high, and that with lower default costs it can be eliminated.

Second, unlike the above literature, I plan to focus on defaults that occur because of the inability of the government to pay the debt, rather than the government's rational choice.This approach is motivated by the following considerations. On the one hand, over the past 20 years developed economies have drawn closer to the peaks of their Laffer curves (see Trabandt and Uhlig 2011), the population has aged and the burden on the new generation of tax payers for providing social benefits for the old has risen—this constrains the flexibility of fiscal policy. On the other hand, collisions of interests of different social groups within democratic political systems often prevent swift fiscal adjustment (see Alesina and Drazen 1991). These features combined mean that modern fiscal policies are not flexible: they face fiscal limits that may undermine the sustainability of government debt. Yet most of the debt literature investigates defaults that arise because the government optimally *chooses* to default—see Aguiar and Gopinath 2006, Arellano 2008, Mendoza and Yue 2012, Yue (2010)—an approach that omits the above considerations. Furthermore, limitations on fiscal policy proved to be important in the recent Greek debt crisis, that was triggered by the reveal of new information with regard to Greek fiscal deficits and the magnitude of government indebtedness.

# References


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Mendoza, E. G. and Yue, V. Z. (2012). A General Equilibrium Model of Sovereign Default and Business Cycles. *The Quarterly Journal of Economics*, 127(2):889–946.

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Trabandt, M. and Uhlig, H. (2011). The Laffer curve revisited. *Journal of Monetary Economics*, 58(4):305–327.

Yeyati, E. L. and Panizza, U. (2011). The elusive costs of sovereign defaults. *Journal of Development Economics*, 94(1):95–105.

Yue, V. Z. (2010). Sovereign default and debt renegotiation. *Journal of International Economics*, 80(2):176 – 187.

# Anna V. Sokolova, Curriculum Vitae

## Personal Information & Contacts

**Born:** December 28, 1987

**Current positions:**

- Research Fellow, Senior Lecturer
  Department of Theoretical Economics
  National Research University
  'Higher School of Economics', Moscow
- Researcher
  Faculty of Social Sciences,
  Charles University in Prague
- Visiting scholar
  Haas School of Business,
  University of California, Berkeley

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## References

- M.Udara Peiris (NRU Higher School of Economics)
- Dimitrios P. Tsomocos (University of Oxford)
- Sergey Pekarski (NRU Higher School of Economics)
- Tomas Havranek (Czech National Bank, Charles University in Prague)

## Research Interests

**Macroeconomics:** sovereign defaults, monetary policy, fiscal policy, consumption theory, meta-analysis in macroeconomics.

## Teaching experience

- 'Macroeconomics', Bachelor program
- 'Advanced Macroeconomics', Master program
- 'Microeconomics', Bachelor program

## Academic Appointments

**Visiting scholar** September 2016 to present
University of California, Berkeley
Haas School of Business,

**Researcher** February 2016 to present
Faculty of Social Sciences,
Charles University in Prague,

**Research Fellow** June 2016 to present
Laboratory for Macroeconomic Analysis,
National Research University 'Higher School of Economics',

**Senior Lecturer** September 2015 to present
Faculty of Economic Sciences,
National Research University 'Higher School of Economics',

**Junior research fellow** May 2013 to June 2016
Laboratory for Macroeconomic Analysis,
National Research University 'Higher School of Economics',

**Visiting scholar** May 2013 to November 2013
Ecole Normale Superieure de Cachan, France
– Supervised by Professor Hubert Kempf

**Lecturer** September 2010 to 2015
Faculty of Economic Sciences,
National Research University 'Higher School of Economics',
**Intern researcher** September 2009 to May 2013
Laboratory for Macroeconomic Analysis,
National Research University 'Higher School of Economics'

## EDUCATION

**National Research University 'Higher School of Economics', Moscow**

Ph.D, Economics, from November 2011 to June 2015

- Thesis Topic: *Macroeconomic policy and the risk of sovereign default*
- Adviser: Professor Sergey E. Pekarski

MA, Economics, August 2011

- Thesis Topic: *Inflation Expectations and Their Impact on Inflation in Russia*
- Adviser: Professor Sergey E. Pekarski

BA, Economics, August 2009

## WORKING PAPERS

[1] Havranek T., Rusnak M., Sokolova A. Habit Formation in Consumption: A Meta-Analysis / Revise & Resubmit at *European Economic Review*, available at meta-analysis.cz/habits.

[2] Havranek T., Sokolova A. Do Consumers Really Follow a Rule of Thumb? Three Thousand Estimates from 130 Studies Say 'Probably Not' / *Czech National Bank and Charles University, Prague. Available at meta-analysis.cz/excess_sensitivity.*

[3] Peiris M. U., Sokolova A, Tsomocos D. P. Capital Flows, Default, and Renegotiation in a Small Open Economy. Available at www.asokolova.org

## WORK IN PROGRESS

[4] Sokolova A. Default Costs and the Fiscal Limit: Strategic vs. Excusable Default. Available at www.asokolova.org

## PUBLICATIONS

[5] Sokolova A. 2015 Fiscal Limits and Monetary Policy: Default vs. Inflation. *Economic Modelling*. Vol. 48. P. 189-198. doi:10.1016/j.econmod.2014.10.041

[6] Sokolova A. 2014. Are inflation expectations in Russia forward-looking? *International Journal of Computational Economics and Econometrics*. Vol. 4. No. 1/2. P. 254 -268. doi:10.1504/IJCEE.2014.060292

## CONFERENCE TALKS

2016

- MAER-Net 2016 Colloquium (Conway, Arkansas), September 15-17. Presentation: *Do Consumers Really Follow a Rule of Thumb? Three Thousand Estimates from 130 Studies Say 'Probably Not'*

2015

- XXIV International Conference on Money, Banking and Finance (Rome), December 3-4. Presentation: *Default Costs and the Fiscal Limit: Strategic vs. Excusable Default'*
- 19th Conference on Theories and Methods in Macroeconomics (Berlin), March 26-27. Presentation: *Sovereign Risk and the Fiscal Limit: Excusable vs. Strategic Default*

2014

- 17th International Economic Association World Congress (Jordan), June 6-10. Presentation: *Fiscal Limits and Monetary Policy: Default vs. Inflation*
- 18th International Conference on Macroeconomic Analysis and International Finance (Greece), May 29-31. Presentation: *Sovereign Risk and Monetary Policy*
- 15th April International Academic Conference on Economic and Social Development (Russia), April 1-4. Presentation: *Sovereign Risk and Monetary Policy*

2013

- XXII International Conference on Money, Banking and Finance (Italy), December 12-13. Presentation: *Sovereign Risk and Monetary Policy*

## INVITED TALKS

2015

Czech National Bank, Economic Research Department seminar, January 29. Presentation: *Default Costs and the Fiscal Limit: Strategic vs. Excusable Default*

2014

Czech National Bank, Economic Research Department seminar, September 26. Presentation: *Fiscal Limits and Monetary Policy: Default vs. Inflation*

## AWARDS

2015

Best Teacher Award, awarded by the Faculty of Economic Sciences at National Research University 'Higher School of Economics'

## SUMMER SCHOOLS

2014

- 15th Trento Summer School, *Intensive course on Financial Crises*, June 16-27
- Barcelona Macroeconomics Summer School, University Pompeu Fabra, *Sovereign Debt Crises: Theory, Evidence and Europe*, July 7-14

## LANGUAGE SKILLS

Russian: Native speaker
English: Excellent
French: Basic

## PROGRAMMING EXPERTISE

**Matlab**

- code for Peiris, Sokolova, Tsomocos, *'Capital Flows, Default, and Renegotiation in a Small Open Economy.*

**R**

- code for Sokolova *'Default Costs and the Fiscal Limit: Strategic vs. Excusable Default'*
- Bayesian Model Averaging and Frequentist Model Averaging estimation in Havranek, Rusnak, Sokolova *'Habit Formation in Consumption: A Meta-Analysis'*
- Bayesian Model Averaging estimation in Havranek, Sokolova *'Do Consumers Really Follow a Rule of Thumb? Three Thousand Estimates from 130 Studies Say 'Probably Not"*

**STATA**

- data analysis and regression estimations in Havranek, Rusnak, Sokolova *'Habit Formation in Consumption: A Meta-Analysis'*
- data analysis and regression estimations in Havranek, Sokolova *'Do Consumers Really Follow a Rule of Thumb? Three Thousand Estimates from 130 Studies Say 'Probably Not"*

**Eviews**

- GMM estimations in Sokolova 2014 *'Are inflation expectations in Russia forward-looking?'*

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**Associate Professor**
*ICEF, NRU Higher School of Economics*
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The Recruitment Committee

**Re: Anna Sokolova**

*To whom in may concern,*

I wish to express my **strong support** for Dr. Anna Sokolova in her application for your advertised position.

Anna is a passionate researcher and a dedicated teacher. Although she is a product of the Russian system at the Higher School of Economics, her level and quality of training is at the level of a PhD graduate from any good European department. She is widely read and actively engages with the profession and academics internationally. I am confident she will publish in top field journals in the future.

Anna is a macroeconomist specializing in international economics and fiscal policy. Her job market paper is co-authored with myself and Dimitrios Tsomocos. The paper itself is very new – we began discussing it around 7 months ago. Anna had initially intended to use her previous work as a job market paper but as the results in this paper became evidently strong she decided to use this. I supported her in this decision.

Although it is related in many ways to some of the previous work that I and Tsomocos have worked on in the past, **this particular paper is, to a large extent, the work of Anna**.

The theoretical contribution of the paper lies in realizing and formalizing the link between the Nash-bargaining approach to model default and the General Equilibrium approach of using non-pecuniary costs as in the paper of Dubey Geanakoplos Shubik (2005) ``Default and Punishment in General Equilibrium''. That Anna constructed the minimal framework necessary to reconcile the two approaches will yield important results going forward and provides a micro-founded alternative to modelling credit frictions in macro-economics. The macroeconomic contribution of the paper is to disentangle three interrelated features of models of (private sector) capital flows and

default: (i) the device to model default, (ii) the pecuniary costs of default and (iii) the insurance opportunities default provides. In this paper Anna identified that capital flows may collapse if default, or haircuts, in the event of contractions are either too large or too small. She also identified that policies that encourage capital accumulation can alleviate this problem.

The other research projects of Anna are promising and show the potential she has as a researcher. Her papers "Default Costs and the Fiscal Limit: Strategic vs. Excusable Default" and "Fiscal limits and monetary policy: default vs. inflation" address the issue of sustainability of sovereign debt in an environment where fiscal limits undermine governments' ability to pay foreign and domestic lenders. The paper "Do Consumers Really Follow a Rule of Thumb? Three Thousand Estimates from 130 Studies Say `Probably Not' " argues that many prominent papers that estimate fiscal multipliers  assume share of rule-of-thumb consumers that are too high, which implies that estimates of the multipliers are likely exaggerated. Her paper "Fiscal limits and monetary policy: default vs. inflation" comments on how normative statements about inflation issued by central bankers can affect risk of default (and the risk premium) on domestic portion of public debt. The paper "Habit Formation in Consumption: A Meta-Analysis" yield estimates of the degree of habit formation in consumption---a parameter that is key for matching hump-shaped impulse-responses to monetary policy shocks in DSGE models used by central bankers.

Anna is a considerate and dedicated teacher. I have asked several of my research students to obtain help and advice from her and she has always been forthcoming and generous with her time.

Anna is a bright and affable person and will be a pleasure to have in any department. She is intelligent, keen to engage with colleagues on research discussions, intellectually curious and hardworking and ambitious. She will be a boon to any department and I strongly recommend her.

If you require any further information, please do not hesitate to contact me.

Sincerely,

M. Udara Peiris

CNB CZECH NATIONAL BANK

# Reference Letter

*November 11, 2016*

To Whom It May Concern:

During the last two years I have worked with Dr. Anna Sokolova on three papers: one is still in the making, another is under review at JPE, and the last is in the third round of revisions at EER. The latter paper is a meta-analysis of the estimates of habit formation in consumption, and we use Bayesian and frequentist model averaging to trace the differences in published results to the differences in data and methodology that authors employ. While the paper is new, it has already been cited by several researchers, including Eric Leeper and co-authors in their forthcoming AER study on fiscal multipliers.

Anna's contribution to the paper on habit formation has been decisive. My role has been limited to discussions concerning motivation, design of the analysis, and rewriting parts of the manuscript. She has also done herself most of the revisions required by the editor and three reviewers at EER. Anna is also the corresponding author of the paper under review at JPE, which is a meta-analysis of 3,000 excess sensitivity estimates taken from 133 studies. The analysis involved months of full-time work on data collection, as well as intimate understanding on consumption modelling and modern econometric techniques. One of the referees of the working-paper version of the study was Orazio Attanasio, who summarizes his evaluation of the paper as follows:

*"Overall I enjoyed the paper and find it very well executed and useful. The authors are technically very careful and perform a rigorous meta-analysis. The inference tools they use are very well chosen and appropriate to the task."*

Our cooperation with Anna has been smooth and I highly appreciate her drive, discipline, innovativeness, and attention to detail. I consider Anna one of the best co-authors, if not the very best one, I have ever worked with (I have written 30 manuscripts with 17 co-authors from 7 countries, including senior researchers).

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Our joint work has only involved empirical macro studies, but in her research Anna primarily focuses on theoretical macroeconomics, especially modelling sovereign defaults. In the second year of her PhD studies she was able to publish a solo-authored paper in Economic Modelling, which is remarkable given that it is not easy to do economics research in Russia, especially for female authors. I have read drafts of her recent papers and believe they show a lot of potential and can be published in good field journals. All in all, what I have learned about Anna's research skills so far leads me to the conclusion that she is and will be able to publish well in the fields of both empirical and theoretical macroeconomics.

Anna is also an excellent teacher and has great presentation skills. I understand she won the Best Lecturer Award at her university, and I have personally seen her teaching during my visit to Moscow in January 2015. I obtained my PhD from Charles University, Prague, and in the last years I spent several months at the University of Helsinki and University of California, Berkeley; I am convinced Anna would be regarded as an excellent lecturer at all of these institutions.

I believe your department will benefit from the skills, diversity, and passion for research brought by Dr. Anna Sokolova. Please contact me in case you have any questions about the candidate.

Sincerely,



Tomas Havranek, PhD
www.tomashavranek.cz

Advisor to the Board at the Czech National Bank

*Selected publications*: JEEA, JIE (2x), IMF Economic Review, JMCB, JIMF, IJCB.

According to RePEc I am currently the most cited Czech economist. I also rank globally among the top 20 young economists and top economists in my cohort.

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Dimitrios P. Tsomocos *Professor of Financial Economics and Fellow in Management of Saïd Business School and St. Edmund Hall*

**TO WHOM IT MAY CONCERN**

November 11, 2016

I am writing to recommend Ms. Anna Sokolova for a tenure-track faculty position at your institution.

Anna has an alert and strongly motivated personality. Her analytical ability and her synthetic power are most commendable and are equivalent to graduates from top US or European departments. She is value-oriented and fascinated by new ideas, but never carried away by fads and fashions. She possesses strong economic intuition, a lot of practical experience and an excellent mathematical background. She is at home with linear and non-linear programming, calculus, statistics and econometrics. She has a remarkably broad knowledge in macroeconomics, especially in international economics, and is a voracious reader of current research. She is committed to a career in academia.

Her job market paper is co-authored with me and Professor Peiris. The paper itself is very new and is improving as I write this letter. I supported her decision to use this work as her job market paper instead of her past work given the strength of the results in this paper. I am happy that she followed my advice and manifested intellectual self-confidence and audacity rarely seen in academics of her generation.

Although it is related in many ways to some of the previous work that I and Peiris have produced, **I categorically declare that at least 85 percent of the paper is due to her contribution.**

The formal link between Nash bargaining and default as it is modeled by Shubik (see, Dubey Geanakoplos Shubik, 2005, "Default and Punishment in General Equilibrium'') had eluded some of the best economic theorists. Dr. Sokolova suggested a benchmark model to reconcile the two approaches that yields important results going forward and provides a micro founded alternative to modelling credit frictions in macroeconomics. I firmly believe that her approach may generate a host of practical application in the interface of macroeconomics and finance.

In conclusion, Anna is a terrific person and an academic determined to understand the hardest part of every subject. As a scholar, she knows how to distinguish between what is serious and what is

frivolous. Her conscientiousness and commendable maturity make her a pleasure to work with. I **very strongly recommend** Ms. Sokolova. I firmly believe that he will be an asset to the academic community both as a teacher and as a researcher. I look forward to an excellent academic and a dedicated teacher in a few years' time.

As I feel very strongly about Ms. Anna Sokolova, please feel free to contact me for any additional information

Sincerely Yours,



Dimitrios P. Tsomocos

HIGHER SCHOOL OF ECONOMICS
NATIONAL RESEARCH UNIVERSITY

December 1, 2016

Dear members of the Search Committee,

This letter is written in support of Dr. Anna Sokolova's application for a Postdoc position at NBER. I am delighted to provide her with my highest recommendation.

I am Chair of the Department of Theoretical Economics at the National Research University "Higher School of Economics" (HSE) in Moscow. I am providing my recommendation as Dr. Sokolova's former academic advisor and her current employer. I believe I am uniquely capable for this task, as I have been closely monitoring Dr. Sokolova's progress both as a researcher and a teacher.

HSE was established in 1992 as a small modern university in the field of Economics. By now it is one of the largest classical universities in Russia with the leading position in Economics, Mathematics, Computer Science, among others. Faculty of Economic Sciences provides solid education in Economics and Finance at undergraduate and graduate levels. Our former students, Malenko (MIT), Bryzgalova (Stanford), Parakhonyak (Oxford), Pogorelskiy (Warwick), among others, were able to join strongest departments in USA and Europe. I have no doubts that Anna Sokolova, who certainly fits this brilliant cohort, meets high requirements for postdoctoral fellowships for research in macroeconomics at NBER.

I have known Anna ever since she became interested in macroeconomics as an undergraduate student. From the very beginning it became clear that she has outstanding potential as a researcher, as she is completely devoted to her research. As a researcher, Anna has displayed a remarkable flexibility, being interested in a variety of quite different topics in the field of macroeconomics. Her first paper "Are inflation expectations in Russia forward-looking?" was an empirical work based on her MA thesis in which she estimated the Hybrid Phillips curve on Russian data; this resulted in her first publication. Her next project "Fiscal limits and monetary policy: default vs. inflation" was a theoretical work that explored monetary policy in light of possible sovereign default. This paper contributes to the literature on the Fiscal Theory of the Price Level by offering a theoretical model that features a trade-off between sovereign default and inflation. It offers an interesting and well-articulated argument that official

statements revealing the central banker's tolerance toward inflation may raise sovereign bond prices. The paper was published in Economic Modelling, 2015.

The results of another projects undertaken by Dr.Sokolova are summarized in her paper "Default Costs and the Fiscal Limit: Strategic vs. Excusable Default". This paper also feature a theoretical model on sovereign defaults – however, compared to her previous work both the idea and the model are completely new. The focus of this project is the relationship between default costs and the probability of sovereign default. Classic literature on the subject states that higher default costs reduce the probability of default; Anna challenges this result by building a well-crafted theoretical counterexample. I think this result is particularly important, as it leads to policy implications that differ from those suggested by previous literature, the literature that is not based on the general equilibrium approach. I believe that Journal of Monetary Economics would be a good outlet for this paper and I have encouraged Anna to aim at sending it there.

Dr. Sokolova's job market paper (in co-authorship with M.Udara Peiris, HSE, and Dimitrios P. Tsomocos, University of Oxford) also has very high potential. It examines the feedback between private and sovereign debt crises and offers new insights concerning macro-prudential regulation, namely that taxing FDI flows is sub-optimal and that the government should focus on encouraging capital investment.

Apart from the work featured in her papers on cross-border capital flows, Dr.Sokolova has recently completed (and submitted to journals) two other papers. First, there is a collaboration with Tomas Havranek and Marek Rusnak (Czech National Bank) on a paper estimating the degree of habit formation in consumption. This paper was initially submitted and rejected by the European Economic Review with encouragement to revise and resubmit, and after a substantial revision (handled by Anna) has received favorable referee reports and a formal revise-resubmit. Second, another promising collaboration with Tomas Havranek (on estimating shares of rule-of-thumb consumers) has been recently completed and is now submitted to Journal of Political Economy.

I have very high expectations for Anna's future research: over the past years she has shown rapid growth as a researcher which I believe will continue in the future as she is both creative and hardworking.

As a teacher Dr. Sokolova demonstrates the same thoroughness as she does with her research projects. Anna teaches at the Faculty of Economic Sciences, which is one of the major faculties at HSE. Over the last 5 academic years she has been assisting and teaching beginner and advanced macroeconomics at undergraduate and graduate levels to approximately 130 students yearly. In 2015, based on students anonymous voting held at the end of the second semester, Anna won the Best Teacher award.

In short, I give my highest recommendation to Anna Sokolova. She is a talented and promising researcher. If you need any further information, please feel free to contact me.

Sincerely yours,
Sergey Pekarski,

*Professor, PhD (Erasmus Universiteit Rotterdam)*
*Head of the Department of Theoretical Economics*
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*Faculty of Economic Sciences,*
*National Research University Higher School of Economics*
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*Moscow, Russia*