Nova Economics Club

Publication #3 – November 2015

Robert F. Engle Edition

Contents:

NEC

CONNECTING ECONOMICS

Subscribe to our Newsletter here

US Shale Oil: Swing or Marginal Producers?
Editorial

One year after OPEC's decision not to cut production to sustain high oil prices, the US shale industry appears to be dealing reasonably well with this low-price oil environment. Challenging most predictions, the debt burden of many shale oil companies remains controlled, consolidation continues within healthy levels, and companies have been able to drive down costs and increase productivity. US shale producers' resilience has triggered the discussion on the extent to which they could assume OPEC's – and especially Saudi Arabia's – role as swing oil producers. After all, they have highly elastic short run supply and considerable spare capacity provided by a large number of shale wells available for drilling in the case oil prices recover. Even it is inaccurate to compare the response of several independent producers with a cartel's response in terms of efficacy, the US shale industry has some features which may lead to speculation as to whether US producers will, at the very least, partially assume the role of global swing producers.

Shale's cost structure is substantially different from the front-loaded investment of conventional oil, allowing shorter lead times, less initial investment, and lower barriers to entry and exit. The shale industry invests on a real-time basis, drilling when prices warrant, and does not requires constant investment when production declines. Considering that a shale oil well requires between three to four weeks to be drilled, 90% of its output is yielded during 24 months of exploitation, and coupled with the fact that production needs three months to restart once shut in, it is plausible to consider that less indebted US players may use their "spare capacity," with a minimum time lag of one month until oil reaches the market.

Moreover, companies are increasingly heading towards multi-pad drilling to reduce environmental impact and decrease costs, currently ranging from 42$ to 60$ per barrel in several regions. During 2015, this strategy allowed total production to fell only by 10%, while production trends diverged across different regions. Around 70% of the decrease in production comes from the Eagle Ford region, a younger player with a higher rate of production decline. This suggests that monitoring production decline rates may be a better way to access future trends in production than monitoring rig counts, especially since the sharp increase in productivity witnessed in 2015.

Having 4200 DUCs combined in the Bakken, Eagle Ford, Niobrara, and Permian shale plays – falling under the EIA definition of spare capacity as "production that can be brought on within 30 days and sustained for at least 90 days" – may help US companies to secure their role as potential swing producers. This is significant given the assumption that that OPEC's spare capacity is expected to shrink to 1.6 million b/d in 2015 and that the US is reducing its oil import dependency. US shale producers may flood the market with oil if prices return to a 60 - 80$ price range, as generating FCF and deleveraging the sector creates a key advantage in the current warfare within oil markets. This extra production may ensure that oil prices remain controlled within a moderate range and that the American economy continues to benefit from it. Indeed, a fraction of these benefits could be used to support the shale industry during periods when technology and productivity hit temporary obstacles.

However, I would rather suggest that this industry will assume a hybrid role in production in the short run, with features characteristic of both swing and marginal producers. In order to provide a swing response to oil price fluctuations, US shale companies need to coordinate accordingly their production decisions. Nevertheless, this type of coordination is difficult due to heterogeneity in costs across different regions and also due to the high debt position assumed by some shale players. In order to fully become swing producers, US companies need to keep driving down costs and increasing rig productivity, as being a low-cost producer would give them effective control of prices.

In sum, we still need to consider shale companies as marginal producers that supply huge amounts of oil to the market – in fact, the US is currently the largest oil producer in the world, with shale oil accounting for half of its production. In the long run, the capacity to swing around prices fluctuations will depend on how shale producers manage to reduce costs and improve technology while simultaneously continuing to repay their debts.

Pedro Filipe Rodrigues

November in Review

1st China's purchasing manager's index came in at <u>49.8 in October</u>, a contraction for the third consecutive month.

Justice and Development Party (AKP) won the <u>Turkish general elections</u> with 40,9% of the vote and a majority in Parliament with 248 seats.

5th Janet Yelled admitted that interest rates <u>may rise in December</u> if the economic data continues to indicate an increase of GDP and inflation.

The European Comission reviewed its <u>forecasts</u> for the Eurozone economic outlook (2015 – 2017), estimating a 1,6% increase in GDP in 2015, 1,8% in 2016 and 1,9% in 2017 and lower levels of inflation.

6th UK's manufacturing output <u>rose 0,8% in September</u>, the largest increase since April 2014, mitigating fears that the UK's economic recovery was fading out.

9th The Catalan parliament voted a motion to initiate the process of <u>independence from Spain</u>. The motion also includes the untying of the territory from the Constitutional Court decisions.

10th The motion to <u>reject the government program</u> was approved by the majority of the deputies on the Republic Assembly, 11 days after been vested.

12th The BCE will take new <u>measures to stimulate the economy</u>, such as strengthening the purchasing program of assets and declining the deposits rate, which is already negative. It is also being considered the extension of the asset purchase program, currently in force until September 2016.

14th The series of terrorist attacks in Paris claimed up to 140 lives. The civil war in Syria and the emergence of the Islamic State as a magnet for jihadists is <u>increasing Europe's vulnerability</u> to such attacks.

The ECB found <u>1,74 billion euros capital gap</u> among nine tested lenders. The biggest hole was Novo Banco SA, from Portugal.

16th Marriott <u>acquired</u> Starwood for $11.9 billion in stock and $340 million in cash, creating the world's largest hotel company.

17th The Greek government and its bailout negotiators have <u>reached a tentative agreement</u>, enabling the restructuring of Greece's banks and the release of €2bn in aid.

18th Fed minutes of its October policy-making meeting revealed that the majority of Fed officials think the US economy will be ready for <u>higher rates in December 2015</u>.

19th Brazil's annual inflation rate increased past <u>10% in mid-November</u>, reaching a 12-year high and adding pressure to an economy in recession and with an unemployment rate at a 6-year high.

Mario Draghi repeated his willingness to use "all the instruments available" to reach a 2% inflation target, signaling increased <u>QE stimulus action</u> from the ECB in December.

23rd The right-center coalition "Cambiemos" <u>won the general elections</u> in Argentina, with 51,4% of the vote. The new government expects to implement structural changes within the Argentinian economy in order to attract new investments to the country.

Eurozone's PMI <u>came in at 54,4</u> in November, its highest value over the last four and a half years. The increase from 53,9 in October was due to the contribution of the industrial and service sectors.

24th The Governor of the Bank of England assured that British reference interest rate <u>will remain unchanged</u> for "some time" and suggested that future increases in the reference rate will be moderate and limited.

The Portuguese President nominated Antonio Costa, the leader of the Portuguese Socialist Party, to become the <u>new Prime Minister of Portugal</u>. After almost two months of negotiations, the new Portuguese government will include the Socialist Party and will be supported in the Parliament by the Left Bloc and by the Portuguese Communist Party.

US Q3 GDP was revised and <u>came in at 2,1%</u>, 0,6% higher than its preliminary forecast.

NEC Recommends
Articles and trends to watch

Women's Progress Outdid China's One-Child Policy – NYT

Amartya Sen argues that the Chinese fertility decrease over the decades had less to do with the one-child policy and more with societal transition as Chinese family begin to favor a new norm of smaller-sized families. Read more here.

When is fiscal policy needed? – The money illusion

This article discuss when fiscal policy should be enforced. The main point is that in an ideal world, no fiscal stimulus is needed because the central bank can solve the problems with monetary stimulus, which costs are a lot lower than the costs of fiscal stimulus. But this is never enforced in the real world. Read more to understand why.

America's labour market is not working – FT

Martin Wolf explores the declining participation rate of prime-aged adults in the US labor market and explains why this is a pressing issue that not only reveals a "significant dysfunction," but also merits further analysis and action. Read more here.

The useful Trojan horse of the UK productivity puzzle – Voxeu

Productivity in the UK has slowed despite the economic recovery and the British government's focus. As such, Linda Yueh gives her thoughts on how to get to an adequate level of productivity investment that hedges against slow growth in the long-term.

The Trouble With Interest Rates – Project Syndicate

J. Bradford DeLong rebuts John Taylor's view that U.S., European, and Japanese monetary policy of forward guidance, low interest rates, and QE is a "decline in credit availability [that] reduces aggregate demand, which tends to increase unemployment, a classic unintended consequence". Read more here.

China's Unwilling Consumers – Project Syndicate

The stimulus policies implemented by the Chinese government to spur consumers - through higher expectations of future inflation - to consume more, appear to be failing. Consumption-led growth remains unattainable and given "China's economic structure, under-developed financial market, and weak welfare state, high levels of precautionary saving will persist for the foreseeable future". Read more here.

Alternative measures of government indebtedness – Voxeu

This article presents a range of new techniques for measuring the debts of countries like Greece, Portugal and Ireland. Based on these techniques, it supports that Greece's debt is anywhere from 50% higher than the Portuguese and Irish debt to as little as 50% lower, concluding that "Greece is far less indebted than is commonly reported".

### Douglass North, an Economist's Historian – A Fine Theorem

Douglass North passed away on November 23, 2015. He was the co-recipient of the 1993 Nobel Memorial Prize in Economic Sciences, for "having renewed research in economic history by applying economic theory and quantitative methods in order to explain economic and institutional change." A Fine Theorem honors his memory by discussing one of his pieces, i.e. "The Role of Institutions in the Revival of Trade". Read more here.

Can Airlines Make Money? – Priceonomics

Priceonomics addresses the current surge of record profits that have been challenging the widespread notion of the dismal economic prospects and resulting low attractiveness of the airline industry – arguing that airlines' strategy has been that of "monopolizing airports and stranding half the country."

Do ultra-low interest rates really damage growth? – The Economist

Disagreeing with the recent claims of Michael Spence, Kevin Warsh and Bill Gross that the Fed's QE program is responsible for low investment growth, weak productivity and stagnant wages, this article defends that "weak aggregate demand continues to be the principal obstacle to a stronger economic recovery".
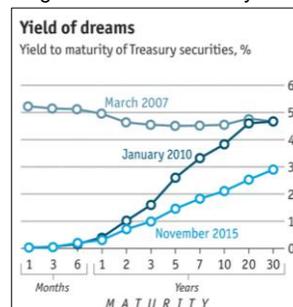
Source: Economist.com

Behavioral Economics: Why is it important?
NEC Articles

"Political Economy presupposes an arbitrary definition of man, as a being who invariably does that by which he may obtain the greatest amount of necessaries, conveniences, and luxuries, with the smallest quantity of labour and physical self-denial with which they can be obtained in the existing state of knowledge."

Having in consideration this premise by John Stuart Mill, thinkers like Alfred Marshall, Léon Walras, and Vilfredo Pareto, among others, contributed to develop mainstream economics by using a powerful mixture of objective formalization of assumptions and reasonable analysis of consequences. This conceptualized world, inhabited by unemotional and unethical rational optimizers known as *Homo Economicus*, reigned in economic textbooks since, at least, Paul Samuelson's *Economics* was published in 1948.

But recently, economists begun to rediscover (see the earlier works of Irving Fisher and Keynes on irrationality) the importance of incorporating the contribution of psychology in these frameworks. Although standard models on *expected utility theory* are easier to formalize, there are significant criticisms to three implicit assumptions.

"economic agents present limited processing capabilities and are often influenced by *overconfidence*, *memory bias*, *cognitive dissonance*, other persons' suggestions (*anchoring*), and fear of feeling *regret*"

The first one relies on the fact that economic agents present limited processing capabilities and are often influenced by *overconfidence*, *memory bias*, *cognitive dissonance*, other persons' suggestions (*anchoring*), and fear of feeling *regret*. Consequently, utility is not always maximized. This *bounded rationality* (as Herbert Simon coined it) explains why people often adopt rules of thumb to save time since it is eminently impossible to digest all the flow of information available nowadays. To develop a more psychologically precise description of decision making, Amos Tversky and Daniel Kahneman wrote *Prospect Theory: An Analysis of Decision under Risk* (1979). This seminal paper on Behavioral Economics revealed that people make decisions based on the heuristic potential value of losses and gains. Even if people can accurately measure probabilities, there is always a subjective interpretation made by each individual.

"human cooperation is a purely *selfish* incentive driven act to achieve a greater utility in the future"

Related with the previous argument there is another regarding human *willpower*. For instance, even if we can target the optimum, there are circumstances where that unambiguous point is not chosen. We all have drunk, eaten, smoked or spent more than we should have in a particular moment. The trade-off between short and long-run, due to uncertainty, is measured only in probabilistic terms.

Last but not least, it is believed that human cooperation is a purely *selfish* incentive driven act to achieve a greater utility in the future. Economic students study how to overcome the free rider problem in a *public good* context (no individual contribution if there is no improvement in private welfare) but fail to recall a lesson present from Adam Smith's *Theory of Moral Sentiments* (1759) to Amartya Sen's The *Idea of Justice* (2009): humans are frequently willing to sacrifice their own interests. Furthermore, several papers by Ernst Fehr showed that concerns for reciprocity, fairness and altruism have a resilient effect on people's motivations.

The take-home idea is not that standard models, by definition simplified representations of reality, should be abandoned or their theories forgotten. These models are, undeniably, useful first approximations to reality. But they are *not* the whole story.

João Pereira dos Santos
President of the Nova Economics Club

The other poppies: Childhood and Education during the Great War
NEC Articles

In February 2014 UK repaid some of the debt issued to finance the First World War, symbolically showing how the effects of the conflict remained for so long. In November, the month of the armistice, we may remember the long and enduring impacts on Human Capital from conflicts as the Great War.

From an aggregate perspective, Human Capital losses can be measured by the percentage of active population killed during the war, however, we get a blur picture when looking for micro data from the Great War years. Despite the significant literature regarding the effects of World War II, the impacts of the First World War have been receiving much less attention in the empirical research. This is easily justified by the lack of data gathered during the early twenty century.

Despite this lack of data, several evidence reveals how the children and schools were affected during the conflict. In New Zealand, for example, half of the 2000 schools were run by a single teacher, and according to the military registry, 500 teachers were listed as soldiers in early 1917.

> ## "the effects on children remained during the rest of their lives"

Adding to the consequences on formal education, the destruction of Human Capital can also be measured by the impacts on children that lived during the war time. In 1915 it was published *The World War and Personal Expressions by Children: 150 German School Essays,* where several children expressed a mix of proud in the fathers who left to the war and fear with the news that arrived from the front. Just recently, some research work quantified the impact of growing in these troubled times. German data show significant falls in weights and heights of boys and girls between 1914 and 1924. Behind it is the British blockade to Germany which created an acute nutrition depravation, especially in boys from lower working classes. The effects on children remained during the rest of their lives, since among those cohorts of Germans born during the First World War we notice significant increases in early retirement ages. This matches other literature which shows that war episodes during childhood and adolescence are strongly related with physical and mental health, education, cognitive ability and wellbeing at age 50.

Among all the catastrophic consequences of the Great War, a more optimistic view can also be found. In the Indian region of Pujab, the exogenous increase in military recruitment shows to be related with an increase in literacy rates in the 30's, twenty years after the war. This shows that in developing areas, the army may have been a channel to have access to informal schooling. Thus soldiers acquired skills that would have been impossible to get from a poor quality public schooling system.

On September 1915, just before the autumn term, the Hungarian Ministry of Education published a circular to all schools where it was said that teachers should remind their pupils about the war in the most explicit way possible: "heroic examples and the noble lessons that can be drawn from them' should be given special emphasis". It was the exposure to this environment that makes of the First World War (and of other wars) the sad but interesting field to assess how extreme events during childhood can be so relevant for a country's Human Capital accumulation.

Source: funkidslive.com

References:

[1] Cox, M. E. (2015). "Hunger Games: Or How the Allied Blockade in World War I Deprived German Children of Nutrition, and Allied Food Aid Subsequently Saved Them" *The Economic History Review,* 68: 2, 700-63.

[2] Supan, Axel and Juergen, H. (2011) "Disability, Pension Reform and Early Retirement in Germany", NEBER Working Paper.

[3] Havari, E. and Peracch, F. (2014) "Growing up in wartime: Evidence from the era of two world wars", EIEF Working Paper.

[4] Eynde, O. (2015) "Military Service and Human Capital Accumulation: Evidence from Colonial Punjab", forthcoming, Journal of Human Resources.

[5] Englund, P. "The Beauty and the Sorrow", London, Profile Books, 2012.

Pedro Freitas
NEC Alumni

Assessing the impacts in the Health Sector after the MoU
NEC Articles

Reflecting after a first round of treatment

Citizenship is one of the cornerstones of our society. Rights, duties, institutions and actors are some of the words that come to our mind when we talk about the way a citizen interacts with his or her surroundings. With being a citizen and exercising democratic rights, it comes accountability. Being responsible for what was done. Honoring the past commitments. Acknowledging the merits and the failures.

The same rules apply for our institutions. As economists, we work in both sides of the barricade. Either by issuing forecasts that try to establish numerical basis for the understandings that will be made or by analyzing *ex-post* what went well and what fell short.

For several months, a group of six aspiring economists, coordinated by Professor Pedro Pita Barros, while studying in their final years of the bachelor, decided to take the challenge proposed by the Nova Economics Club to shed some light on how Portugal behaved regarding the Country Specific Recommendations issued by the European Commission in the Health sector.

The report that we issued last May covers three main vectors of the National Health Service – debt, expenditure and hospital reform. The main focus of the analysis goes through the period of the Memorandum of Understanding until the most recent period with data.

Because "courts of public opinion" should issue their opinions when in possession of appropriate instruments, let us kick-start our analysis. Between 2010 and 2015, two patterns can be found on the 8% reduction of the overall expenditure during this period: over the two first years, a 12% reduction was felt, but soon it got reversed due to, among others, the supplement and salary gradual repositions demanded by the Portuguese Constitutional Court. Same pattern is seen on staff costs, while the acquisition of goods and services had a marginal saving of 3%.

On the pharmaceutical side, an issue that frequently gets into the headlines (like the Hepatitis C case this year), public expenditure on pharmaceuticals did not meet the goals in any of the years (2012, 2013 or 2014). Nevertheless, price decreases on medicines have been significant, a result that can be justified by a multitude of strategies taken like a new prescription system, higher supply, growing confidence on generics and measures in the MoU that pushed the pricing rules to lower values.

In terms of access, user charges (i.e, taxas moderadoras) were put in place, although keeping their residual impact on revenue on total revenues of the National Health Service. Although they bring efficiency gains, there are still flaws in the system – the exemption program (which had an increased number of users, due to equity concerns) failed in some of its tasks, payment could not be enforced in some cases and users were still unaware of some features of the measure.

> "we are dealing with issues related with the human life and its value on economic policies that affect anyone around us"

Noteworthy can be still a debt decrease in almost all second semester of 2014 - however, this behavior may not be persistent due to capital increases which serve as "band aid" measures and mask the true perspectives on this issue.

Assessing the impacts in the Health Sector after the MoU
NEC Articles

(Continued from previous page)

Last but not least, the hospital reform. Here, after a first analysis in May, a group of us converted this topic into a paper, presented this October at the 14ª Conferência para a Economia da Saúde, where the HRI – Hospital Reform Index – was presented. After choosing a few goals on the report of the working group on this topic, in attempt to get a sufficiently broad but also to ensure the needed specificity, we measured them in terms of results and initiatives. Here, we concluded that, overall, the hospital reform had much more initiatives and plans of action put in place than the consequent results. The Index pointed out to a global effectiveness between 63 and 75 percent, with a gap between 20 to 40% in terms of accomplished initiatives and results.

Due to this approach that looked through three guiding vectors within the process, some conclusions were taken:

1. Initiatives clearly with a good track, although results lack applicability and effects.
2. Quality was one of the main focus in the hospital reforms, especially in terms of procedural concerns (clinical audits, panel of quality indicators, C-section control), but it
   is also easier to implement or adjust.
3. Evaluating the same index in one year time will, most likely, show new results, which we believe that may consolidate the beginning of this reform.
4. However, this should not be taken as granted. After all, reforms do not show the same results across all lines of action at the same time - changing structures and practices require a long-term focus.

For sure, this is not an easy sector. Besides the usual economic assumptions that are puzzling in the real world, we are dealing with issues related with the human life and its value on economic policies that affect anyone around us. It is hard to attach value to some strategies or decisions and to dismantle all the effects and interconnections, even when doing our best giving conscious weight to all the variables.

However, that does not mean that a thorough analysis can be done. We just left you some provoking points and some hard, fact-based figures to think on. The next episodes can be built by your civic conduct, your role as a sectoral agent or as an analyst as we were. It is up to you.

Carlos Teixeira
NEC Member

Differences between surveys and election's results
NovaStat

After every election, the pre-electoral surveys are usually faced with the subsequent results. The surveys are a measure of the voting intentions that are then inferred to the electorate. However, there are always discrepancies between one and the other.

Why are there differences between surveys and the results of the elections?

First, to conduct the surveys, estimates are based on population samples, which implies a sample error. It's impossible to use the total population as sample, but assuming every member of the universe has the same probability of being selected and supposing that the samples are extracted randomly, the Law of Large Numbers stresses that as the sample grows indefinitely this error tends to disappear. But even if all the requirements are meet, the sample will, nevertheless, represent only part of the population and with some bad luck this part does not reflect the opinion of the majority.

On another hand, there is a tendency to hold surveys using national lists of landline numbers or even randomly generated telephone numbers. However, this implies that electors who do not live in households with telephone are excluded of the sample. Yet, there's always the possibility that those randomly chosen by this procedure are not reachable. Even if the contact is always possible, nothing guarantees that those contacted would respond to the survey. This results in systematic errors of coverage, non-contact or of non-response.

There is also the possibility of the respondents omitting their true voting intentions when asked, not feeling comfortable in doing so. Or even the problem of abstaining and last minute changes. This will create discrepancies between the inferences made on the basis of measurement with the sample and the real intentions of individuals. It is impossible to guarantee the absence of this type of errors.

It is hard to assure that the voting intentions will stay the same throughout the period of the survey and until elections. Many things can happen during this period that could change individual's intentions. The surveys themselves can change the population opinion: either because after seeing the predictions the person may think that another vote will have greater utility, or because the politicians themselves change their strategy and attitude when faced with the possible results the surveys predict.

Even so, assuming no sample error, no biases brought by coverage errors, non-contact and non-response, no biases caused by errors of measurement and with total stability of the intentions of voters, would the surveys produce estimates equal to the voting intentions along a campaign?

Source: genlinkstrategies.com

There have been talks about the possibility of conducting surveys via Web. But won't that lead to the same discrepancies? There is a series of factors that can influence this type of surveys and that are not possible to control, such as having no access to internet, the possibility of influencing the vote or the possibility for someone to vote on behalf of another person.

So what will inevitably happen is a discrepancy between the survey's results and the election results.

In the end, surveys are not 100% accurate previsions.

Adriana Henriques
Catarina Fernandes
NovaStat

Robert F. Engle
Economist of the Month - November

Robert Fry Engle III is the co-recipient of the 2003 Nobel Memorial Prize in Economic Sciences with Clive W.J. Granger, for analyzing "economic time series with time-varying volatility" – more simply put, for developing methods to analyze unpredictable movements in the financial market. Their work constituted an important precursor in leading up to the development of tools for stock analysis that allows greater accuracy in market forecasts.

Particularly relevant in financial market analysis, Engel's ground-breaking work involved the development of mathematical tools to deal with volatility. Inherent in Engles's autoregressive conditional heteroskedasticity (i.e. ARCH) model was the concept that while most volatility tend to be embedded in a model's random error, the variation of the volatility, according to ARCH, actually depends on previous realized random errors – as opposed to the constant random error that was assumed prior to his work. As such, his methods and the ARCH model led to a proliferation of tools for analyzing stocks and enabled economists to make more accurate forecasts.

Born in Syracuse, New York, on November 10, 1942, Engle spent great part of his childhood in Media, Pennsylvania. Graduating at the top of his high school, Engle moved on to Williams College for his undergraduate studies, where he majored in Physics. Engle eventually went on to complete a PhD in economics at Cornell University in 1969.

Following his studies, Engle became an assistant and then an associate professor from 1969 to 1977 at the Massachusetts Institute of Technology. Later, he joined the new University of California campus at San Diego, where he became a professor of economics and then chair of the department of economics – a position he held until 2003 when he became a professor emeritus and research professor. However, starting in 1999, Engel also taught courses in management of financial services at the Stern School of Business at New York University.

Married to Marianne Enger, a clinical psychologist, Engle has two children. He is the co-founder of the Society for Financial Econometrics (SoFiE) and founder of the Volatility Institute at NYU, which promotes research related to financial market risk, Engle also directs the New York University V-Lab – involved in the application of classic models and newer tools towards the forecasting and analysis of market trends. He was also the coeditor of the Journal of Applied Econometrics from 1985 to 1989.

Source: spjain.org

Upcoming Events

Social innovation, social entrepreneurship and development
9th December, 18h00
Santader Totta room
Seminar counting with Gyoergy Szell, from the University of Osnabruck, in Germany.

Douturamento em Sociologia Económica e das Organizações
17th December, 14h30
ISEG (Quelhas Building), Auditorium 2
PhD Thesis: "Do Autoritarismo à Democracia: Continuidades e Mudanças da Corrupção Política no Brasil Após a Redemocratização".

NEC Statistics
Economic Overview

Portugal		Month			2014	2015			Overview (2010 – 2015)	
Indicator	Unit	AUG	SEP	OCT	Q4	Q1	Q2	Q3	Min	Max
GDP	YoY, %	-	-	-	0,6	1,6	1,6	1,4	-4,5 (2012/Q4)	2,5 (2010/Q2)
Unemployment Rate	%	12,3	12,4	12,4	13,5	13,7	11,9	11,9	10,6 (2010/Q1)	17,5 (2013/M1)
Employment Rate	YoY, %	0,6	0,5	-	0,5	1,1	1,5	0,2	-5,0 (2013/Q1)	2,1 (2014/Q3)
Personal Saving Rate	% of avg. income	-	-	-	5,9	5,8	5,0	-	5,0 (2015/Q2)	10,6 (2010/Q1)
Exports	YoY, %	-	-	-	5,7	7,0	7,3	3,9	0 (2012/Q4)	10,3 (2010/Q1)
Imports	YoY, %	-	-	-	8,5	7,1	11,9	-	-12,4 (2011/Q4)	13,0 (2010/Q2)
Coverage Rate (Exp/Imp)	% of imports	-	-	-	97,7	96,1	94,7	-	76,5 (2010/Q2)	101,4 (2013/Q1)
Public Debt	% GDP	-	-	-	130,2	130,4	128,7	-	86,2 (2010/Q1)	132,8 (2014/Q1)
Consumer Confidence Index	Long-term avg. = 100	100,8	100,9	100,9	100,5	100,7	100,7	100,8	96,6 (2012/M11)	100,9 (2015/M9)
Business Confidence Index	Long-term avg. = 100	100,6	100,5	100,6	100,3	100,5	100,8	100,6	97,5 (2012/M10)	100,8 (2015/M4)
Economic Activity Indicator	YoY, %	0,9	0,9	0,9	-0,2	0,3	0,9	0,9	-4,5 (2012/M1)	1,7 (2010/M5)
Industrial Production Index	Avg. 2010 = 100	82,2	99,2	-	93,7	96,5	99,6	95,1	79,6 (2013/M8)	105,3 (2011/M3)
Consumer Price Index	YoY, %	0,7	0,9	0,7	0	0	0,8	0,8	-0,7 (2014/M7)	4,0 (2011/M4)
Loans to Individuals	YoY, %	-3,1	-2,7	-	-3,5	3,5	-3,3	-3,0	-4,3 (2013/M4)	4,1 (2012/M4)
Loans to Enterprises	YoY,%	-9,8	-10,1	-	-9,5	-13,0	-11,1	10,0	-13,5 (2014/M12)	0,2 (2011/M4)
Private Consumption	YoY, %	-	-	-	2,0	2,5	3,2	2,3	-6,1 (2011/Q4)	3,4 (2010/Q2)
Public Consumption	YoY, %	-	-	-	-1,3	-0,5	0,6	-	-3,9 (2011/Q3)	0,7 (2010/Q1)
Gross Fixed Capital Formation	YoY, %	-	-	-	2,8	8,8	5,1	-	-19,3 (2012/Q2)	8,8 (2015/Q1)

Euro Area		Month			2014	2015			Overview (2010 – 2015)	
Indicator	Unit	AUG	SEP	OCT	Q4	Q1	Q2	Q3	Min	Max
GDP	YoY, %	-	-	-	0,9	1,2	1,5	1,6	-1,1 (2013/Q1)	2,9 (2011/Q1)
Consumer Confidence Index	Long-term avg. = 100	100,8	100,8	100,7	100, 2	100, 9	100,1	100,8	97,7 (2012/M11)	101,2 (2015/M3)
Business Confidence Index	Long-term avg. = 100	100,4	100,5	100,6	100,2	100,3	100,4	100,4	98,8 (2012/M10)	101,7 (2011/M2)
Public Debt	% GDP	-	-	-	92,7	92,7	92,2	-	80,0 (2010/Q1)	92,7 (2014/Q2)
Unemployment Rate	%	10,9	10,8	10,7	11,5	11,2	11,1	11,0	9,9 (2011/M4)	12,1 (2013/M3)
Net Exports	YoY, %	-	-	-	-0,4	-2,4	4,9	-	-2,4 (2015/Q1)	222,8 (2010/Q1)
Consumer Price Index	YoY	0,1	-0,1	0,1	0,17	-0,33	0,17	0,07	-0,6 (2015/M1)	3,0 (2011/M9)

USA		Month			2014	2015			Overview (2010 – 2015)	
Indicator	Unit	AUG	SEP	OCT	Q4	Q1	Q2	Q3	Min	Max
GDP	YoY, %	-	-	-	2,5	2,9	2,7	2,1	-1,5 (2011/Q1)	4,6 (2014/Q2)
Consumer Confidence Index	Long-term avg. = 100	100,6	100,2	100,3	100,4	101,1	100,9	100,5	96,8 (2011/M9)	101,1 (2015/M2)
Business Confidence Index	Long-term avg. = 100	98,6	98,6	98,5	100,8	100,7	99,9	99,6	99,4 (2015/M9)	101,7 (2015/M2)
Public Debt	% GDP	-	-	-	103,0	102,8	101,3	-	87,0 (2010/Q1)	103,6 (2014/Q1)
Unemployment Rate	%	5,1	5,1	5,0	5,7	5,6	5,4	5,2	5,0 (2015/M10)	9,9 (2010/M4)
Net Exports	YoY, %	17,1	3,3	-	9,6	4,3	-3,2	2,8	-25,3 (2013/M4)	76,6 (2010/M6)
Consumer Price Index	YoY, %	0,2	0	0,2	1,2	-0,1	0	0,1	-0,1 (2015/M1)	3,9 (2011/M9)

China		Month			2014	2015			Overview (2010 – 2015)	
Indicator	Unit	AUG	SEP	OCT	Q4	Q1	Q2	Q3	Min	Max
GDP	YoY, %	-	-	-	7,3	7,0	7,0	6,9	6,9 (2015/Q3)	9,7 (2011/Q3)
Consumer Confidence Index	Long-term avg. = 100	100,6	100,4	100,3	97,7	98,1	99,2	100,6	94,7 (2013/M7)	99,4 (2010/M6)
Business Confidence Index	Long-term avg. = 100	99,6	99,5	99,3	99,3	98,9	98,6	98,7	98,5 (2012/M9)	101,3 (2010/M1)
Unemployment Rate	%	-	-	-	4,1	4,1	4,1	4,0	4,0 (2015/Q3)	4,1 (2015/Q4)
Net Exports	% GDP	-	-	-	6,2	1,6	7,6	7,2	1,0 (2014/Q1)	4,1 (2014/Q3)
Consumer Price Index	YoY, %	2,0	1,6	1,3	1,5	1,2	1,4	1,7	0,8 (2015/M1)	6,5 (2011/M7)

NEC Statistics
Financial Markets Overview

Currency Pairs		Month			2014	2015			Overview (2010 – 2015)	
PAIR (SPOT)	Unit	SEP	OCT	NOV	Q4	Q1	Q2	Q3	Min	Max
EUR/USD	Close price	1,117	1,100	1,057	4,19%	11,2%	3,65%	0,35%	1,046 (2015/M3)	1,494 (2011/M5)
EUR/GBP	Close price	0,734	0,713	0,702	0,26%	6,78%	1,99%	4,09%	0,694 (2015/M7)	0,908 (2011/M7)
EUR/JPY	Close price	133,9	132,8	130,2	4,58%	11,0%	5,77%	1,75%	94,11 (2012/M7)	149,8 (2014/M12)
EUR/CHF	Close price	1,088	1,087	1,088	0,25%	13,2%	0,18%	4,43%	0,843 (2015/M1)	1,489 (2010/M1)
EUR/AUD	Close price	1,594	1,542	1,462	2,45%	4,8%	2,62%	10,1%	1,160 (2012/M8)	1,659 (2015/M8)
USD/JPY	Close price	119,9	120,6	123,2	9,17%	0,22%	2,03%	2,07%	75,57 (2011/M10)	125,9 (2015/M6)
USD/CHF	Close price	0,974	0,988	1,029	4,09%	2,21%	3,78%	4,15%	0,707 (2011/M8)	1,173 (2010/M6)
USD/CAD	Close price	1,332	1,308	1,335	3,68%	9,18%	1,63%	6,72%	0,941 (2011/M7)	1,346 (2015/M9)
GBP/USD	Close price	1,512	1,543	1,506	3,95%	4,78%	5,77%	3,60%	1,423 (2010/M5)	1,719 (2014/M7)
AUD/USD	Close price	0,701	0,714	0,723	6,47%	6,82%	1,01%	8,89%	0,691 (2015/M9)	1,108 (2011/M7)

Commodities		Month			2014	2015			Overview (2010 – 2015)	
FUTURE 01/16	Unit	SEP	OCT	NOV	Q4	Q1	Q2	Q3	Min	Max
Brent Oil	USD p. barrel, close	48,8	49,6	44,6	43,8%	7,5%	10,2%	25,6%	43,2 (2015/M11)	126,6 (2014/M6)
Natural Gas	USD p. MMBtu, close	2,82	2,32	2,23	30,8%	7,4%	3,3%	12,0%	2,18 (2015/M11)	8,97 (2010/M1)
Aluminum	USD p. ton, close	1590	1517	1461	4,1%	7,1%	4,9%	5,8%	1461 (2015/M11)	2667 (2011/M4)
Copper	USD p. lb., close	2,34	2,32	2,05	5,7%	2,2%	4,4%	10,5%	2,00 (2015/M11)	4,71 (2011/M2)
Nickel	USD p. ton, close	9938	10317	8959	11,5%	13,8%	6,8%	22,5%	8959 (2015/M11)	28412 (2011/M2)
Zinc	USD p. ton, close	1720	1724	1582	5,2%	6,8%	2,6%	17,4%	1582 (2015/M11)	2473 (2011/M2)
Gold	USD p. ounce, close	1115	1141	1065	2,3%	0,2%	1,0%	4,9%	1051 (2015/M11)	1953 (2011/M9)
Silver	USD p. ounce, close	14,5	15,6	14,1	8,8%	6,1%	6,6%	6,9%	13,90 (2015/M11)	50,98 (2011/M4)
Platinum	USD p. ounce, close	909	989	833	7,1%	5,2%	5,6%	15,8%	826 (2015/M11)	1938 (2011/M8)
Cotton	USD p. lb., close	0,604	0,633	0,626	1,7%	4,0%	5,3%	13,9%	0,028 (2010/M2)	1,668 (2011/M3)
Sugar #11	USD p. lb., close	12,9	14,5	14,9	10,9%	16,3%	1,9%	3,7%	11,04 (2015/M8)	41,16 (2011/M2)
Wheat	USD p. bushel, close	512,8	522	476	22,8%	12,5%	19,7%	17,3%	463 (2015/M9)	1132 (2010/M8)
Corn	USD p. bushel, close	387,8	382,3	372,3	17,3%	6,7%	8,1%	10,1%	260,3 (2010/M6)	786,3 (2012/M8)

Indices		Month			2014	2015			Overview (2010 – 2015)	
INDEX	Unit	SEP	OCT	NOV	Q4	Q1	Q2	Q3	Min	Max
S&P500	Quote (close)	1920	2079	2080	4,4%	0,4%	0,2%	6,9%	1011 (2010/M7)	2135 (2015/M5)
NASDAQ Comp.	Quote (close)	4620	5054	5109	5,4%	3,5%	1,8%	7,4%	2061 (2010/M7)	5232 (2015/M7)
Russel 2000	Quote (close)	1096	1158	1196	10,1%	4,5%	0,6%	11,9%	520 (2010/M2)	1286 (2015/M6)
DAX 30	Quote (close)	9660	10850	11382	3,8%	21,7%	8,5%	11,7%	4966 (2011/M9)	12391 (2015/M4)
FTSE 100	Quote (close)	6062	6361	6396	0,7%	3,0%	3,7%	7,0%	4790 (2010/M7)	7123 (2015/M4)
CAC 40	Quote (close)	4455	4898	4915	3,3%	17,8%	4,8%	6,1%	2693 (2011/M9)	5284 (2015/M4)
Euro Stoxx 50	Quote (close)	3101	3418	3480	2,5%	17,5%	7,4%	9,5%	1936 (2011/M9)	3836 (2015/M4)
PSI-20	Quote (close)	5047	5469	5350	4,9%	24,4%	7,0%	9,1%	4372 (2012/M6)	8878 (2010/M1)
Nikkei 225	Quote (close)	17388	19083	20012	7,9%	10,1%	5,4%	14,1%	8136 (2011/M11)	20953 (2015/M6)
S&P Asia 50	Quote (close)	3133	3444	3369	1,8%	5,6%	1,2%	18,3%	2656 (2011/M10)	4183 (2015/M4)

Government Bonds		Month			2014	2015			Overview (2010 – 2015)	
BOND	Unit	SEP	OCT	NOV	Q4	Q1	Q2	Q3	Min	Max
Portugal 2-Year Gov. Bond	Yield (close), Δ bps	0,313	0,348	0,157	7 bps	38 bps	4 bps	1 bps	-0,01 (2015/M6)	21,7 (2012/M1)
Portugal 10-Year Gov. Bond	Yield (close), Δ bps	2,391	2,536	2,325	44 bps	93 bps	128 bp	58 bps	1,51 (2015/M3)	16,5 (2012/M1)
Germany 2-Year Gov. Bond	Yield (close), Δ bps	-0,247	-0,312	-0,414	3 bps	14 bps	2 bps	2 bps	-0,42 (2015/M11)	1,96 (2011/M5)
Germany 10-Year Gov. Bond	Yield (close), Δ bps	0,590	0,523	0,475	41 bps	36 bps	58 bps	18 bps	0,05 (2015/M4)	3,51 (2011/M4)
US 2-Year Gov. Bond	Yield (close), Δ bps	0,629	0,728	0,934	9 bps	15 bps	8 bps	2 bps	0,149 (2011/M9)	1,18 (2010/M4)
US 10-Year Gov. Bond	Yield (close), Δ bps	2,035	2,146	2,208	33 bps	27 bps	42 bps	34 bps	1,38 (2012/M7)	4,01 (2010/M4)