

Research in Applied Econometrics

Chapter 0. Organization 2017-18

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M1 APE Analyse des Politiques Économiques
M1 RISE Gouvernance des Risques Environnementaux

2017 – 2018

Plan

- ▶ Presentation
- ▶ Motivation
- ▶ Organisation

NOS TUTELLES



LABEX



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- CV
- Directeur du [Master Risques & Environnement](#) [1]
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Research Interests

- Environmental Economics
 - Environmental risk
 - Forest policy
 - Prosocial Behaviors
 - Compatibility between stated and revealed preferences
- Applied Econometrics
- Pluridisciplinarity



► All the slides available via this page

Master RISE <http://risques-environnement.universite-lyon.fr> Parcours “Gouvernance des Risques Environnementaux”



Risques et Environnement
Mention de master

Accueil Parcours Actualités Publications Partenariats

Rechercher : >>

Actualités

Le master "Risques et Environnement" accrédité
Le Master "Risques et Environnement" a été officiellement accrédité ce mois de février 2016 par la Direction générale de (...)

Rapport 2015 de l'Agence Européenne de l'Environnement sur la qualité de l'air en Europe
La pollution atmosphérique est le premier risque sanitaire d'origine environnementale en Europe : plus 430 000 décès prématurés (...)

Accueil > Parcours > Gouvernance des risques environnementaux > Présentation

Organisation de la formation

Toutes les versions de cet article : [English [en](#)] [français]

Le **parcours RISE** se passe en deux temps. En M1, les étudiants s'inscrivent dans un master de droit public ou d'économie. Sans être obligatoires, les M1 droit public de Lyon 3 et Analyse des politiques économiques de Lyon 2 présentent un module optionnel préparatoire au parcours RISE en M2.

Le **M2 RISE** s'adresse à des étudiants détenteurs du niveau M1 (ou équivalent) en économie, en droit public, en sciences politiques ou en ingénierie généraliste. Il a pour objectif de former au dialogue pluridisciplinaire autour du risque environnemental pour placer les étudiants dans un contexte professionnel très diversifié, tant sur le plan des domaines académiques que sur celui des objets d'études.

Qu'est-ce que le risque environnemental ? Lisez ici.

Débouchés – Lisez ici

S3 : Enseignements : 3 modules pluridisciplinaires de sept. à février (cliquer pour le syllabus)

risques-environnement.universite-lyon.fr

Course Objectives & Motivations

- ▶ Class in Econometrics
 - ▶ In a unit of English language
- ▶ Goal: Expose students to applied econometrics in **English**
 - ▶ Applied examples with environmental economics data
 - ▶ Students should improve both their applied econometrics skills and their English level
 - ▶ Attendance and interactions in class
- ▶ Focus on applied techniques: **Introduction to R**
 - ▶ More on that later
- ▶ Context : **ex ante valuation of public (environmental) policies**
 - ▶ Contingent valuation / stated preferences
 - ▶ In econometrics details
 - ▶ With R commands
 - ▶ With data & examples

The relevance of valuation studies

- ▶ Cost-benefit analysis
 - ▶ Newly in France: public project with a “déclaration d'utilité publique” have to justify that Benefit > Cost
 - ▶ For market and nonmarket goods & services
 - ▶ Including e.g. value of human life, ecosystem services, patrimonial & heritage values
 - ▶ In principle
 - ▶ How do we compute that ?
 - ▶ That includes environmental “services”, e.g. ecosystem functions
 - ▶ But also all kinds of benefits & costs, e.g. a prison removes criminal from society and helps their rehabilitation
 - ▶ “valeurs tutélaires” (guidelines) & consensual discount rate
- ▶ Damage assessment for non-market goods
 - ▶ France introduced a few years ago the principles of environmental damage and compensation in kind
 - ▶ well-embodied in US legislation
 - ▶ not so much in EU legislation
- ▶ Greening the National Accounts

Course Plan

1. Introduction to R
2. Nonmarket valuation basic theory
 - ▶ French tend to say “évaluation”
 - ▶ English stresses the idea of valuing
 - ▶ “assigning a value”
3. Contingent valuation
 - ▶ Most well-known technique
4. (Choice experiment)
 - ▶ Harder econometrics

Course Organization

- ▶ 6 lectures of 3.5 hours each
 - ▶ Every week
 - ▶ “Dispense d’assiduité” not possible for language courses
 - ▶ Bring your laptop as much as possible
- ▶ Do not forget it is a language course
 - ▶ Please interrupt me when you don’t understand

Evaluation: “Contrôle continu” in class for 100%

- ▶ About 20’ at some point of **each** lecture
 - ▶ Beginning, end or middle
 - ▶ On what we have seen during that lecture **&** the previous one (not several)
- ▶ If you miss one, you get zero at that one
 - ▶ The 1st one is just practice
- ▶ No final exam in “first session” in Decembre
 - ▶ “Rattrapage” in June
- ▶ It is super important that you read / study the class notes **before** coming to class
 - ▶ That is why we do CC

References

- ▶ Aizaki et.al. *Stated Preference Methods Using R*. Chapman and Hall/CRC, 20140815. VitalBook file.
 - ▶ Use DCchoice-package {DCchoice} in R
 - ▶ Base documentation in R
- ▶ Kleiber & Zeilis, *Applied Econometrics with R*, Springer, 2008
- ▶ Wooldridge, J. *Introductory Econometrics : A Modern Approach*, Michigan State University, 2012
 - ▶ [Click this link](#)
 - ▶ BU Chevreul[330.015.2 WOO] (1)
 - ▶ Not [330.015.2 WOO] (2) Econometric analysis of cross section and panel data

Install R

- ▶ Come to class w/ a laptop
 - ▶ R & R-studio installed & up-to-date
- ▶ R @ www.r-project.org/
 - ▶ R-Studio <https://www.rstudio.com/>
 - ▶ IDE (integrated development environment)
 - ▶ Not a Graphical User Interface, but more useful
 - ▶ Packages “add functionalities”
 - ▶ Most often from within R-studio
 - ▶ Start R-Studio
 - ▶ R-Studio calls R

Presenting R-studio: 4 windows

The screenshot displays the RStudio interface with four windows open:

- Source Editor:** Contains R code for a logistic regression model. Comments explain the use of `summary()` for coefficient extraction, the `glm` function for coefficient extraction, and the `mean()` function for mean lead calculation. The code defines `WTP2.probit` as a linear combination of coefficients from the `WTP.probit` model.
- Environment:** Shows the global environment with a table of objects. The table includes columns for Name, Type, Length, Size, and Value. Objects listed include `SB.NP.DC.logit`, `SB.NP.DC.probit`, `SB.NP.glm`, `SB.NP.glm.llogit`, `SB.NP.glm.lnorm`, `SB.NP.glm.logit`, `SB.NP.glm.probit`, `tab`, `WTP.probit`, and `WTP2.probit`.
- Console:** Shows the output of the R script. It indicates the number of Fisher Scoring iterations (4) and the results of the `summary()` function for the `SB.NP.DC.probit` model, including the median WTP value of 33.71668.
- Help:** Displays the documentation for `is.numeric`, explaining that it returns `TRUE` if the base type is `double` or `integer`, and `FALSE` otherwise. It also includes a warning about the behavior of `as.numeric` on factors and S4 methods.

R-Studio Upper Left Window: *editor*

- ▶ Invoked with any of 2 leftmost buttons of the toolbar (New or Load)
 - ▶ Color-coded, with online help & command recognition
- ▶ Programming is written in the editor
 - ▶ Programming = sequence of commands in a text file “script”
 - ▶ with an .R extension
 - ▶ This file is saved for further use, between “sessions”
 - ▶ **Commands** are passed by e.g. `plot(x)`
 - ▶ The editor recognizes command and colors them in **blue**
 - ▶ Commands are executed in the editor by `CMD↵` row by row
 - ▶ Command results may be stored in **objects** with `<-`
 - ▶ `y_lm <- lm(y~x1+x2)`
 - ▶ Several command files may be simultaneously open
 - ▶ tabs

R-studio Windows

- ▶ Lower Left : *console*
 - ▶ Print out command results from editor
 - ▶ Usual way to write code : write one or a few lines, test it
 - ▶ Write commands for immediate execution (with ↵)
 - ▶ Does not stay in memory
- ▶ Upper Right
 - ▶ Environment: List in memory
 - ▶ Can be data or results or functions
 - ▶ Within a project (later) or not
 - ▶ Command history
 - ▶ Can be reused

R-studio Lower Right Window : 5 tabs

- ▶ Files within the project
- ▶ Visualisations of Plots
- ▶ Packages that are present
 - ▶ Loaded if checked square
 - ▶ Install button
 - ▶ Click it (you must be connected)
 - ▶ Type swirl & follow instructions
- ▶ Help
- ▶ Viewer
 - ▶ to view local web content (if you edit webpages)
- ▶ These 5 tabs have in common the Search window

First commands: Project

- ▶ A project is a file that refers to a collection of files
 - ▶ R command files .R, data files, results
- ▶ There's an icon in the upper-right corner of R-Studio
 - ▶ Click it & create a project “Research in Applied Econometrics”
 - ▶ Where you create it is your work directory
 - ▶ Do not use the desktop, the root, or any hard-to-find location
 - ▶ Download the RAE2017.R on my courses' site
 - ▶ Into the same directory as your project
 - ▶ Open it from R-studio Editor : Icon upper left
- ▶ R-Studio recalls the projects
 - ▶ You can go from one to another
 - ▶ All the files written on disk remain available

First commands

- ▶ Some manipulation in Console
 - ▶ write `Sys.setenv(LANG = "fr")`
 - ▶ Sets R Console in French, only for “core”, not for most package
 - ▶ R-Studio is only in English
 - ▶ write `install.views("Econometrics")`
 - ▶ For about all the packages we will ever need
 - ▶ This is long : don't do that in class !
 - ▶ In the future `update.views("Econometrics")`
- ▶ Editor
 - ▶ Write here things that you intend to reuse
 - ▶ **Avoid** French symbols é, è, ê, ë, à, ù, ç, ...
 - ▶ **Avoid** symbols like #, \$, &, -... if you are unsure of their use
 - ▶ **Try to stick** to unaccented latin characters (i.e. US alphabet)
 - ▶ CAPITALISATION is important
- ▶ Starting a row w/ # indicates to R that it is a **commentary**
 - ▶ Green-colored, will not be executed

SWIRL: set of basic training modules

- ▶ Install swirl as any package from R-studio (should be installed by now)
 - ▶ Then type
 - ▶ `install_course("R Programming")`
 - ▶ `install_course("Regression_Models")`
 - ▶ Other courses https://github.com/swirldev/swirl_courses
 - ▶ About SWIRL: <http://swirlstats.com/students.html>
 - ▶ Slides <https://github.com/DataScienceSpecialization/courses>
- ▶ Self-training : Type `swirl()` in concole
 - ▶ do course 1: R programming, Lessons 1-9 + 14
 - ▶ By yourself, from home, before 1st class
 - ▶ We will redo Lesson 1 in class

Some ressources about R on the web

- ▶ Use Google !
 - ▶ Ask question based on English keywords
 - ▶ e.g. “R read Stata data”
- ▶ From R home page www.r-project.org
 - ▶ Getting help, Manuals, FAQs...
- ▶ A few interesting links
 - ▶ Quick-R www.statmethods.net/index.html
 - ▶ <http://stats.idre.ucla.edu/r/>
 - ▶ <http://varianceexplained.org/RData/>
 - ▶ www.r-bloggers.com
 - ▶ R for economists
 - ▶ www.mayin.org/ajayshah/KB/R/R_for_economists.html
- ▶ En français: forget about French for R

To sum up

- ▶ For the 1st course you have to have
 - ▶ installed R & R-Studio on your machines
 - ▶ From R-Studio
 - ▶ `install.views("Econometrics")`
 - ▶ install swirl
 - ▶ In swirl :
 - ▶ install the 2 modules (programming & regressions)
 - ▶ do course 1: R programming, Lessons 1-9 + 14
- ▶ Install packages : DCchoice, Ecdat, stats
- ▶ Created your project & opened RAE2017.R
- ▶ Classes are mandatory
 - ▶ There is CC in each one, no final exam