Quantitative Methods for Anti-Corruption Agencies and Internal Security Units

Bryane Michael, Linacre College (Oxford)

Background

- "Specter" of donor supported ACAs across Europe
- Lackluster ACA performance in period (1999-2002)*
- TI data are most used and most horrible measure of ACA effectiveness
- Risk-management approaches in all law enforcement agencies, FRONTEX, 3rd pillar, etc.
- Prevention in national law and intl conventions is "education" and "codes of conduct" (=we don't know)
- Need something better…

* Franklin Steves and Alan **Russo** (2003)

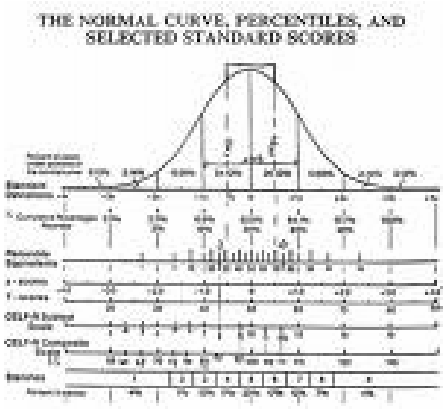
What and Why?

- Intelligence approach
  - needs informants
  - labour intensive
  - boring, low-valued work
- Statistical approach
  - "guess" about "criminal world"
  - few people needed
  - high-valued work

Both approaches used together
Statistics small, but vital part of risk management

Risk Assessment for L.E. Agencies

this is not a risk…



…this is a risk

4% prob. of bribes at BCP
variance of trade value = 23.4

(either normal method (expectaton or max likelihood)
or Bayesian method
(based on surveys, expert opinions, etc.)

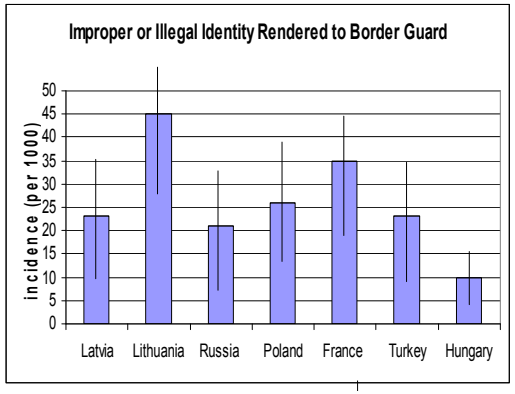
P[corr] = β_1 (surveys)
+ β_2 ($ value at risk)
+ β_3 (dept size)
+ β_4 (time in post)

Usual warnings about statistics

depends on competencies of ACA (only Art. 6, investigatory, or I&P)

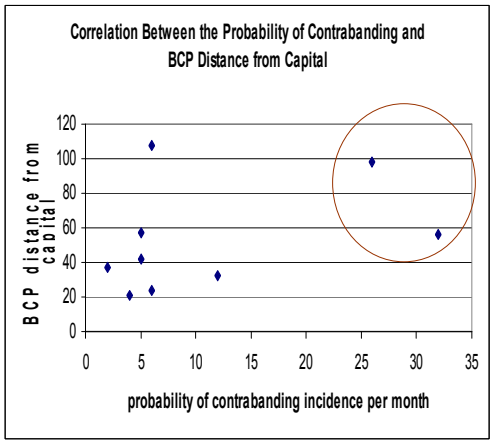
Statistical Methods in Brief

1. Finds <u>significant</u> differences



are there differences in legal infractions based on
1. border crosser passport type?
2. officer performance?

2. Test <u>relationships</u> between variables

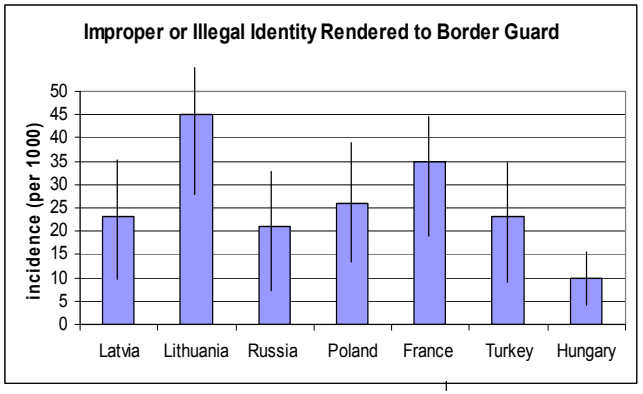


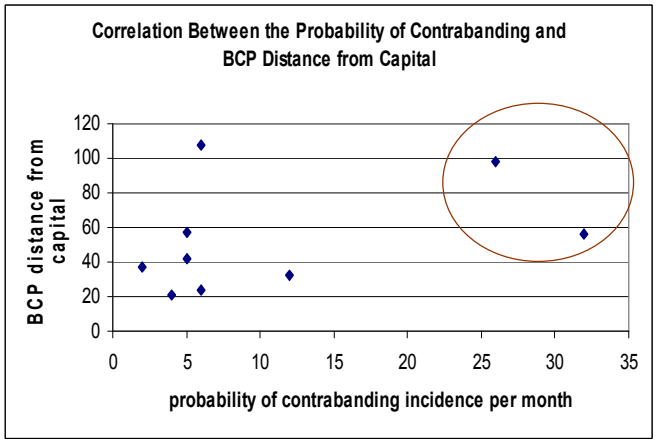
is there a positive, negative, or no relation between 2 or more variables?

price is 2s outside of other traders – possible border infraction

Statistical Methods in Risk Analysis

- Examples of stats of use to ACA or “affiliated bodies”
  - probability of contraband
  - probability of false documents
  - calculating “out of control” individuals and BCPs
  - calculate resource use for “at risk” strata of border crossers
  - find transactions at risk of *blanchissement* (FIU)
  - stats with *Microsoft Excel*

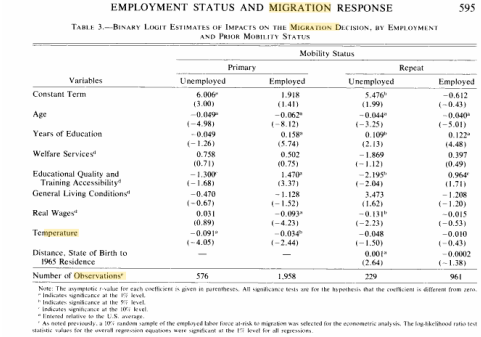




Staffing: basic stats for staff, 1-2 “quants”

Modelling Corruption

Proper place for opinions about law enforcement

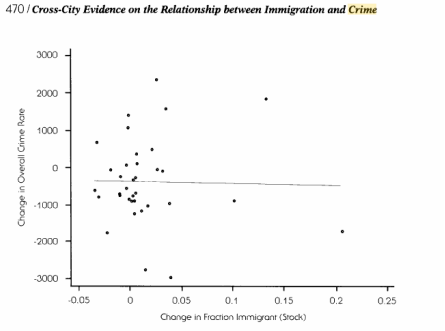


EMPLOYMENT STATUS AND MIGRATION RESPONSE 595

TABLE 3.—BINARY LOGIT ESTIMATES OF IMPACTS ON THE MIGRATION DECISION, BY EMPLOYMENT AND PRIOR MOBILITY STATUS

	Mobility Status			
	Primary		Repeat	
Variables	Unemployed	Employed	Unemployed	Employed
Constant Term	6.006[a] (3.00)	1.918 (1.41)	5.476[b] (1.99)	−0.612 (−0.43)
Age	−0.049[a] (−4.98)	−0.062[a] (−8.12)	−0.044[a] (−3.25)	−0.040[a] (−5.01)
Years of Education	−0.049 (−1.26)	0.158[a] (5.74)	0.109[b] (2.13)	0.122[a] (4.48)
Welfare Services[d]	0.758 (0.71)	0.502 (0.75)	−1.869 (−1.12)	0.397 (0.49)
Educational Quality and Training Accessibility[d]	−1.300[c] (−1.68)	1.470[b] (3.37)	−2.195[b] (−2.04)	0.964[c] (1.71)
General Living Conditions[d]	−0.470 (−0.67)	−1.128 (−1.52)	3.473 (1.62)	−1.208 (−1.20)
Real Wages[d]	0.031 (0.89)	−0.093[a] (−4.23)	−0.131[b] (−2.23)	−0.015 (−0.53)
Temperature	−0.091[a] (−4.05)	−0.034[b] (−2.44)	−0.048 (−1.50)	−0.010 (−0.43)
Distance, State of Birth to 1965 Residence	—	—	0.001[a] (2.64)	−0.0002 (−1.38)
Number of Observations[e]	576	1,958	229	961

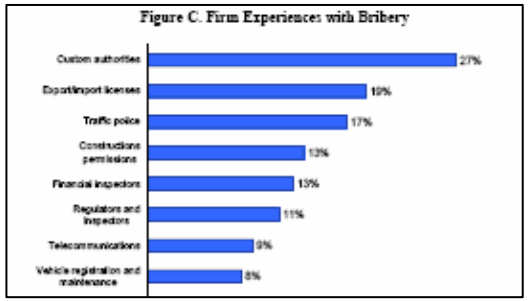
Note: The asymptotic *t*-value for each coefficient is given in parentheses. All significance tests are for the hypothesis that the coefficient is different from zero.
[a] Indicates significance at the 1% level.
[b] Indicates significance at the 5% level.
[c] Indicates significance at the 10% level.
[d] Entered relative to the U.S. average.
[e] As noted previously, a 20% random sample of the employed labor force at-risk to migration was selected for the econometric analysis. The log-likelihood ratio test statistic values for the overall regression equations were significant at the 1% level for all regressions.



470 / *Cross-City Evidence on the Relationship between Immigration and Crime*

Modeling hypothesis about level of search of nationals versus non-nationals as prophylactic against crime

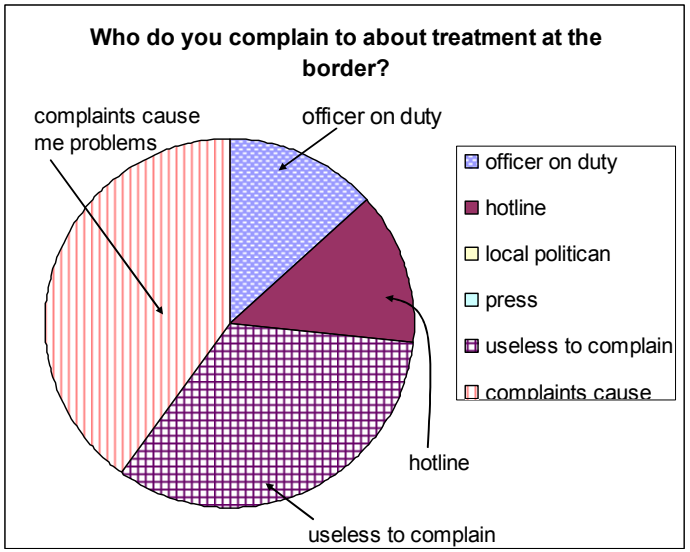
Testing ACA hypotheses

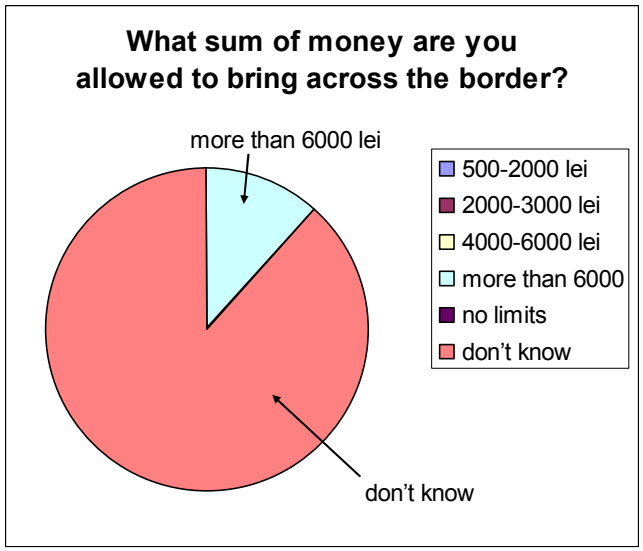


also fulfils Lisbon Agenda/RIA

€5000 → **€3000 reduction in social harm**

Using survey data to guide policy



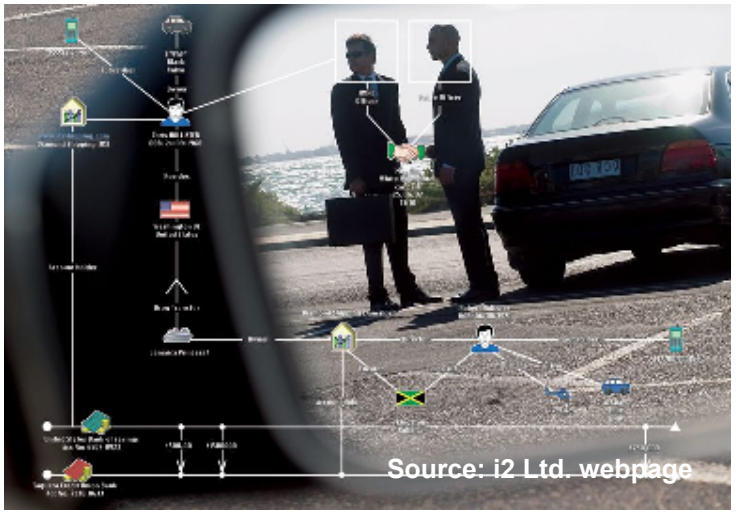


Conclusion: Internal security is unreliable – centralise.

Conclusion: No one knows law, of course easy to seek bribes – PR is answer

Linking Intelligence-based to Statistics Based RM

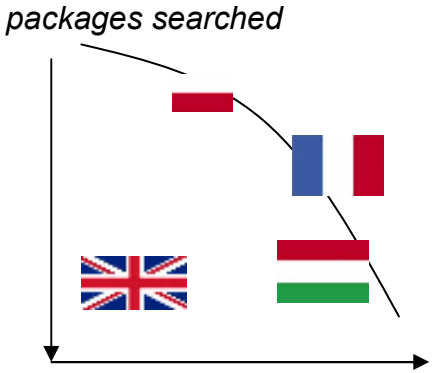
- Software such as i2 helps make order of investigations
- each component decomposible (quantifiable)
- plot for trends ACROSS CASES
  - advanced techniques such as network (graph) analysis better than using trained eye
- The standard for organised crime and corruption cases…

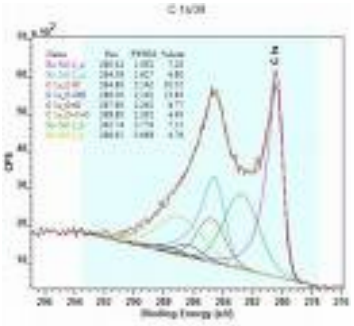


finding probability of someone with criminal links

Statistics at EU Level

- Data envelope analysis as international audit (protect Community interests)





- Comparing survey data and “epidemiological” data

- Statistics cheap and good way find repeated international schemes.

An ounce of risk management is worth a pound of “prevention”