



CSIRO

Trade and Invasive Species Risk Mitigation:

Imperial College
London

Reconciling WTO Compliance with Maximising
the Gains from Trade



David Cook and Rob Fraser

Society for Risk Analysis Conference,
University of Melbourne
July 17th - 19th 2006



Outline

- Introduction
 - Alien invasive species
 - Role of economic analysis
- The Appropriate Level Of Protection (*ALOP*)
 - *WTO* compliance
- Unilateral Net Welfare Maximisation
 - Consumer and producer surpluses
- Reconciliation
 - $ALOP = GT$
- Conclusions



Imperial College
London





The SPS Agreement



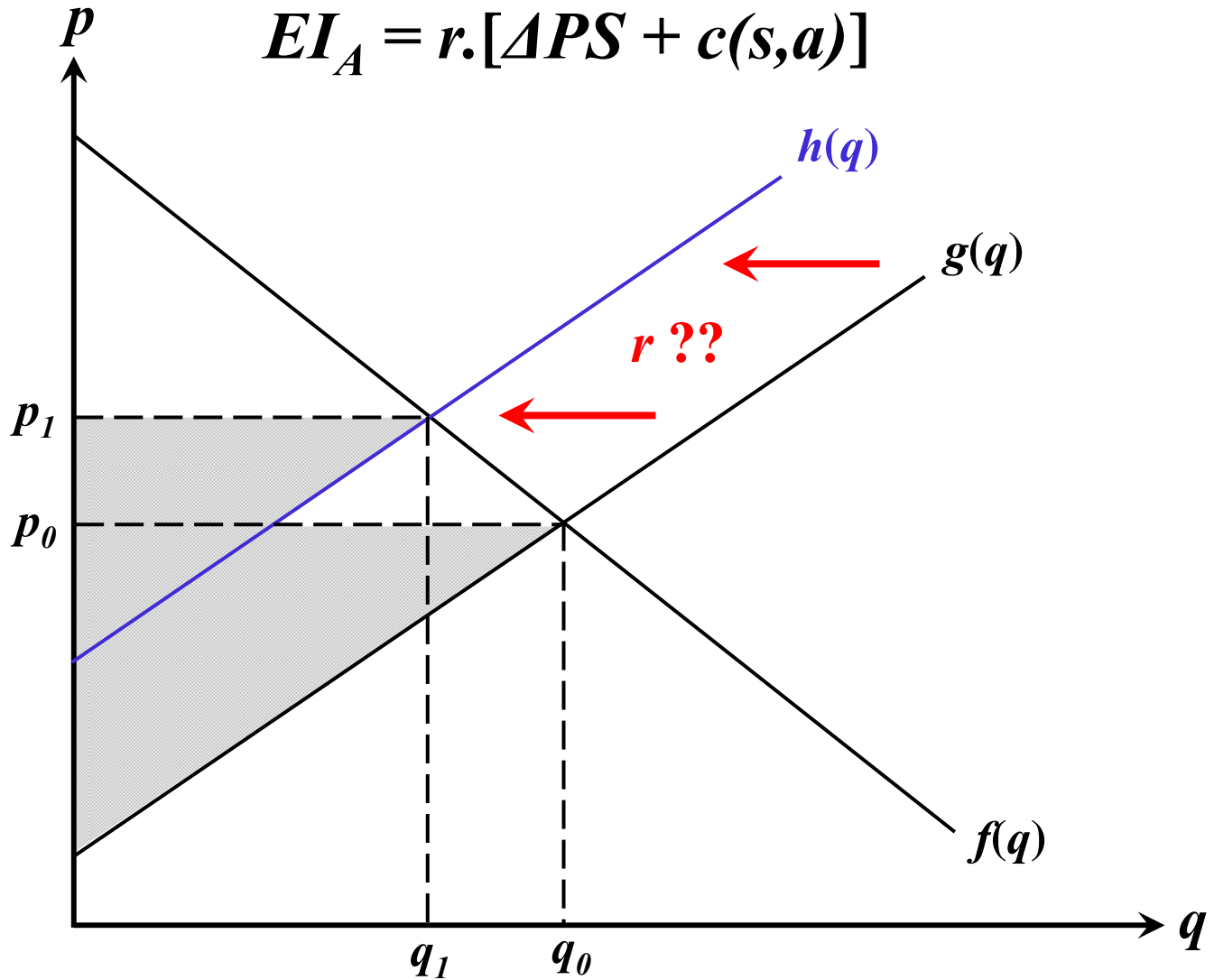
Imperial College
London

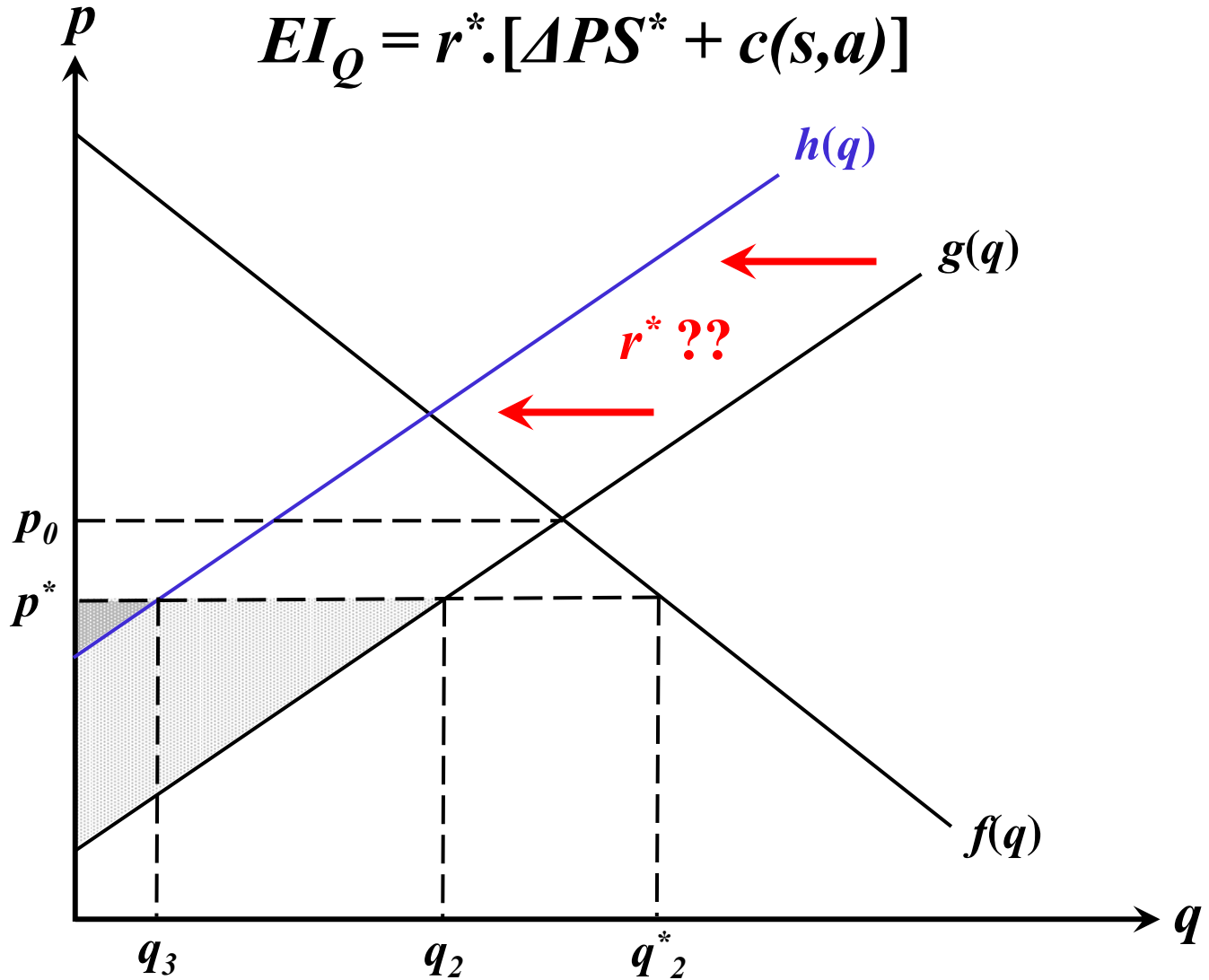


- Strong focus on production effects
 - Article 5 (Para. 3) stipulates that any welfare effects resulting from trade in potentially-contaminated goods be measured in terms of producer welfare
- Members can restrict trade up to the point where the risk posed is 'acceptable' (i.e. $< ALOP$) and remain compliant
- An *ALOP* is a locus of arrival probabilities and incursion impacts with a unique product representing the maximum tolerable level of contamination risk

Expected Impact - Autarky

$$EI_A = r \cdot [\Delta PS + c(s, a)]$$







WTO-Compliance Decision Rules



Imperial College
London



- $ALOP$ is a standard representing the maximum tolerable expected impact
- Allow quarantine-restricted trade if:

$$(EI_Q - EI_A) - ALOP < 0$$

- Do not allow trade if:

$$(EI_Q - EI_A) - ALOP > 0$$

Let $EI^* = EI_Q - EI_A$



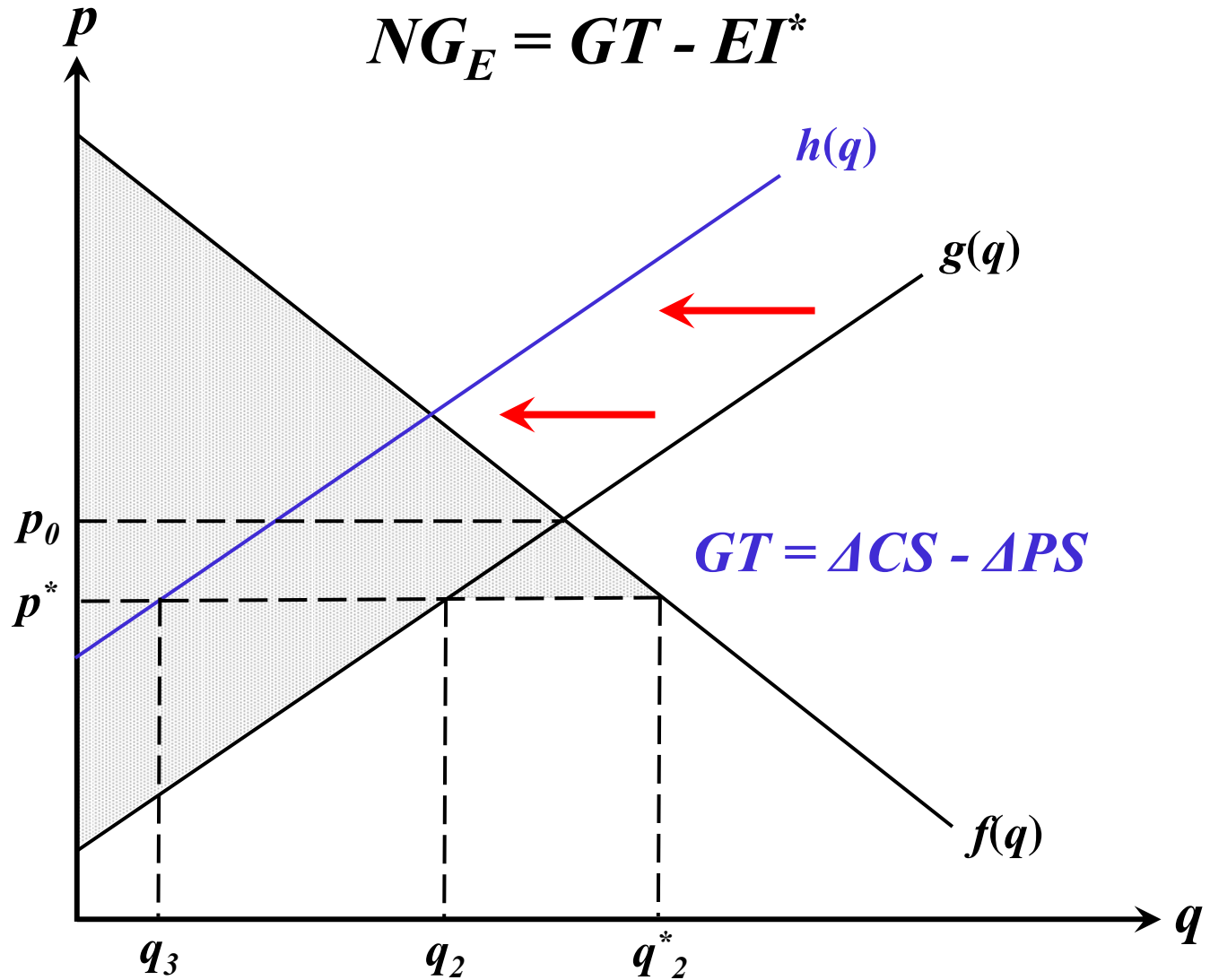
Unilateral Net Welfare Maximisation



Imperial College
London



- What are the welfare implications for both producers and consumers?
 - i.e. traditional gains from trade ($\Delta CS - \Delta PS$)
- Increased ‘expected damage’ associated with importation
 - i.e. increased risk of a negative supply shock
- The total consumer gains must be sufficiently high to offset the expected losses to domestic producers for there to be a net gain from moving from a closed economy to a quarantine-restricted trade setting





Unilateral Welfare Maximisation Decision Rules



Imperial College
London



- Allow quarantine-restricted trade if:

$$(GT - EI^*) > 0$$

- Do not allow trade if:

$$(GT - EI^*) < 0$$

What if $GT = ALOP$?



Reconciliation

- The exclusion of consumer interests in the import decision of a WTO-compliant Australia does not necessarily lead to socially-undesirable trade policies
- If the *ALOP* is set at the same level as *GT* and compared to an expected impacted assessment WTO-compliance is equivalent to unilateral welfare maximisation
 - i.e. $GT = ALOP = \Delta CS - \Delta PS$
- If the $ALOP < GT$, the WTO-compliance decision rule will restrict trade more than the unilateral welfare maximisation rule (and vice versa)



Imperial College
London





Key Drivers



Imperial College
London



- Difference between the probabilities of arrival in a quarantine-restricted and closed economy setting ($r^* - r$)
 - Affects EI^*
- Cost of SPS measures (t)
 - Affects GT and EI^*
- Quarantine-restricted trade likely to be welfare maximising where both t and $(r^* - r)$ are relatively small (and vice versa)



Complexities



Imperial College
London



- To date, no WTO Member has articulated its *ALOP*
 - political sensitivities
 - consistency
- Health and the environment
- Without comprehensive information on the non-market effects of an invasive species, importing countries may err on the side of caution
 - precautionary principle
 - prevention is better than cure



Conclusions

- Alternative trade decision frameworks can be reconciled such that they produce the same outcome regarding whether or not trade is permitted
- Two parameter values of critical importance
 - cost of SPS measures
 - differential risk
- Quarantine-restricted trade likely to be welfare maximising where both the cost of SPS measures and differential risk are relatively small, and vice versa.



Imperial College
London





Thank You



Imperial College
London



Contact

Name	David Cook	Rob Fraser
Title	Research Economist	Professor of Agricultural Economics
Address	CSIRO Entomology GPO Box 1700 Canberra ACT 2601	Kent Business School Imperial College Wye Campus Wye, Ashford, Kent, TN25 5AH
Phone	+61 (0)2 6246 4093	+44 (0)207 59 42698
Fax	+61 (0)2 6246 4000	+44 (0)207 59 42838
Email	david.c.cook@csiro.au	r.fraser@imperial.ac.uk

Contact CSIRO

Phone 1300 363 400
+61 3 9545 2176
Email enquiries@csiro.au
Web www.csiro.au