

POTENCIAL ECONOMIC IMPACTS OF AVIAN INFLUENZA IN LAC

**The Mass Media and the Threat of Avian
Influenza in Latin America
August 2006**

**César Falconi
Interamerican Development Bank**



Two different but related cases

1. AI is an animal disease that could affect the **Poultry Sector**.
2. AI could cause a **Human Pandemic**.

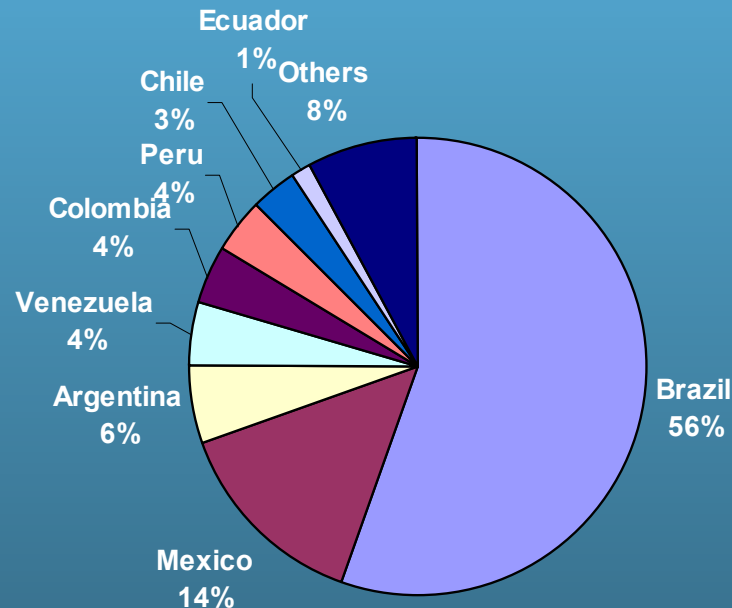
1. POULTRY SECTOR

At risk: Poultry Sector

- Total number of animals: 2,552 mill. , 14% of total world stock.
- Total annual meat production: 16.1 mill. tons, 25% of total world production.
- Total egg production: 5.4 mill. tons.
- Total exports: 2.05 mill. tons, US\$2,048 mill., 3.5% total agricultural exports.
- Share in Agricultural GDP: 15%, US\$ 15,885 mill.
- Employment in poultry production chain, 4.0 mill.
- Nutritional level: chicken inexpensive source of protein.

At risk: Poultry Production

- 16 million tons of poultry (25% of world production)



Main Impacts of an AI Outbreak: Poultry Sector

Main Impacts

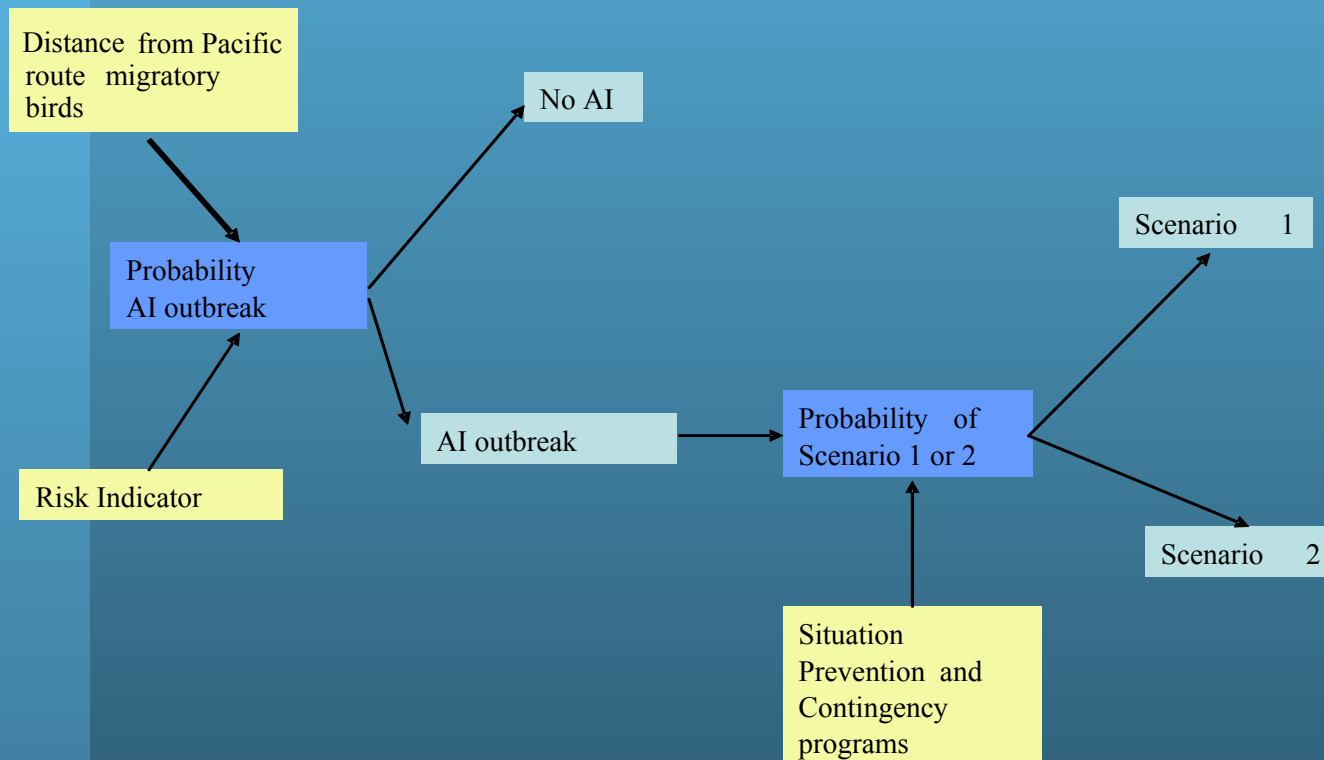
- Animal death and culled resulting in **production losses**.
- Loss of **markets** (international and national markets).
- **Prices** in the domestic market will be affected.
- Fiscal expenditures: **compensation** to producers.

Costs of each Scenario

	Scenario 1	Scenario 2
Total Cost (US\$ mill.)	6.840	742
Total Cost / Total GDP	0.39%	0.04%
Total Cost / Agric. GDP	5.8%	0.63%
Compensation (US\$ mill.)	600	64

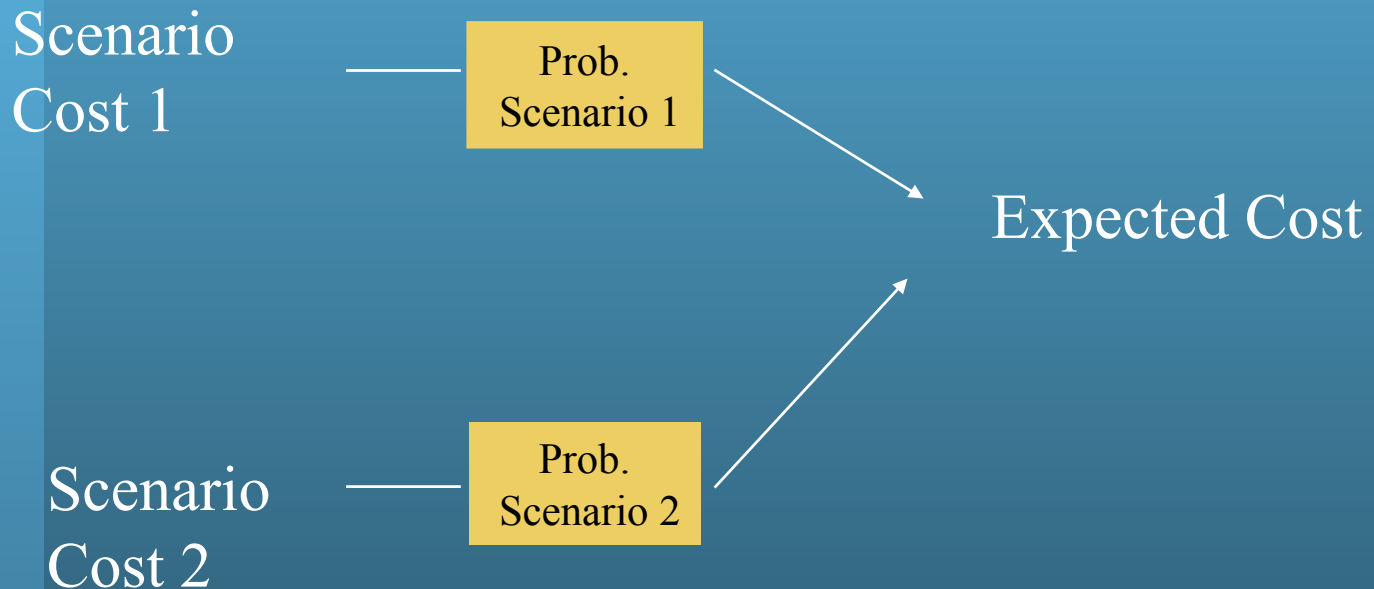
Risks and Probabilities AI

- Pandemic Risk Indicator
- Country's Distance from Pacific Route Indicator
- Prevention and Contingency Status of AI Indicator



Expected Cost AI

- Expected Cost =
(Scenario Cost 1)* (Scenario Probability 1) +
(Scenario Cost 2)* (Scenario Probability 2)



Expected Costs AI Outbreak: Results

Total Cost (US\$mill.)	1.632
Total Cost / Total GDP	0.09%
Total Cost / Agric. GDP	1.42%
Compensation (US\$ mill.)	250

Prevention AI Benefits / Costs: Poultry Sector

Expected Costs

- Coordination, prevention y preparation
- Surveillance and Early Alert System
- Control and eradication (vaccination & compensation)

Based on Vietnam information adjusted to LAC and IDB Technical Study.

Expected benefits

- Losses avoided for investments to improve prevention, control and surveillance of a potential outbreak.

Costo y Beneficio de inversión en sistemas de salud animal (prevención, vigilancia y preparación; US \$ mill.)

	Costos (Inversiones)	Pérdidas esperadas sin inversión	Pérdidas esperadas con inversión	Beneficio	B/C
Brasil	54	882	253	629	11.75
Cono Sur	16	83	38	45	2.82
Argentina	7	62	28	34	5.12
Pacto Andino	95	343	88	255	2.7
Colombia	18	104	10	94	5.35
América Central	19	74	18	55	2.9
El Salvador	2	18	5	13	6.98
Caribe	18	51	14	37	2.11
TOTAL	247	1632	525	1108	4.5

Prevention AI Benefits / Costs: Poultry Sector

Benefits / Costs Results

Costs (Investments) (US \$ mill.)	247
Expected Losses without investments (US \$ mill.)	1632
Expected losses with investments (US \$ mill.)	525
Benefit (US \$ mill.)	1108
Benefit / Cost	4.5

Conclusion: High return on the investment of prevention and preparation of AI control.

2. HUMAN PANDEMIC

Risks of Human Pandemic Influenza

- **Public Health**
 - 540 million people in LAC.
 - 124 million people living in rural areas.
 - 222 million Labor Force.

Main Impacts of Human Pandemic Influenza: Economy

- A fall in the **labor force** due to a rise in mortality and illness.
- A reduction in **consumption** by households.
- An increase in the cost of doing **business**: workplaces temporarily closed, reduced demand for products.
- Reduction in **investments**.
- A shift in **consumer preferences** away from exposed sectors.
- Substantial pressure on **provision of public services**: health system and health goods.

Estimate of the cost of a Human Pandemic Influenza: Assumptions

Assumptions

- Focus only on labor force impact.
- Follow McKibbin and Sidorenko (2006) study:
 - Three pandemic scenarios: mild (1968), moderate (1957), severe (1918).
 - A pandemic risk index estimated by Maplecroft (2006).
 - An index of health attainment (WHO 2000).
 - Mortality rates are determined relative to USA, using two above indexes.

Estimate of the cost of a Human Pandemic Influenza: Assumptions

Assumptions

- Follow McKibbin and Sidorenko (2006) study:
 - Losses due to sick workers, 1.15% of labor force.
 - Absenteeism of workers to take care of sick family members: 20% of women workers absent to take care of their children.

Estimate of the cost of a Human Pandemic Influenza: Results

Results:

Expected Deaths in LAC

Mild	45,000
Moderate	450,000
Severe	2,250,000

Estimate of the cost of a Human Pandemic Influenza: Results

Results:

Impact of an influenza pandemic affecting **labor force** in LAC (mill. of US\$)

	Deaths	Absenteeism	Total
Mild	1,499	10,506	12,005
Moderate	14,986	10,506	25,493
Severe	74,931	10,506	85,437

Estimate of the cost of a Human Pandemic Influenza: Results

Results:

Impact of an influenza pandemic affecting **labor force** as % of Regional GDP

Mild	0.71
Moderate	1.50
Severe	5.00

Conclusions

- Y2K - very low impact because of **preparedness**.
- Timely investment could save more than **US\$ 1.200 millions** in the short term to the poultry sector.
- This investment could also reduce significantly the chances of a human pandemic, which could have severe consequences to the Region.

Conclusions, cont.

- **Resources (financial and institucional) are required to prevent an outbreak of avian flu.**

Short term priority: preparedness and prevention, in particular to animal health systems.