



THE ECONOMIC BENEFITS & COSTS OF ANTIMICROBIAL USE IN FOOD ANIMAL PRODUCTION: WHAT LESSONS CAN BE DRAWN?

MICHAEL RYAN,

SENIOR POLICY ANALYST, TRADE AND AGRICULTURE DIRECTORATE, OECD

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Central issue....

- **Main policy challenge;**
 - **the long term social costs of antimicrobial resistance may not be fully reflected in the business calculations/decisions of livestock producers, as they weigh the benefits and costs of antimicrobial use.**
- **Evaluating the use of antimicrobials in animal production is complex due to a range of uses;**
 - **Treatment of disease**
 - **Prevention and control of disease outbreaks**
 - **Promotion of animal growth**



Scope of the AMR work in TAD

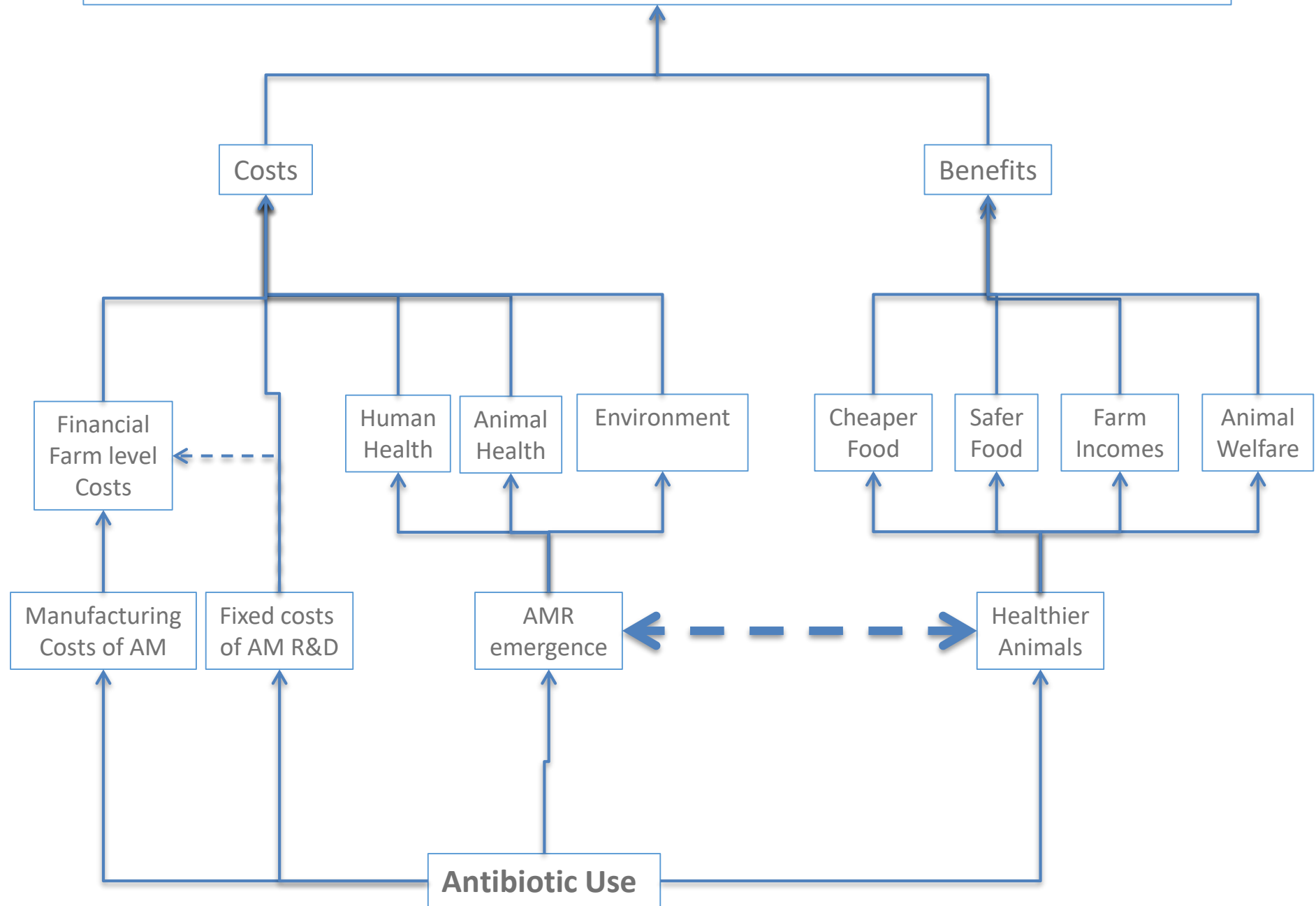
- **This work attempts to bridge the information gap by;**
 - Contributing to a better understanding of the economic dimension of antimicrobial use in animal production
 - Identifying policies that can align producers incentives with a more prudent (and socially beneficial) use of antimicrobials.
- **Starting point for this assessment is an examination of the benefits/costs of AMU at the farm level in several countries.**
- **With the focus on the economic dimension of the problem this work seeks to complement the technical work/guidelines of the OIE & FAO.**
- **Complements the work of the OECD Health Committee.**



Methodology and approaches taken

- **The work took the following approach;**
 - Evaluate existing cost/benefit studies on the use of antimicrobials on animal farm (see chart– source: J. Rushton).
 - Established an informal expert steering group (ESG) on AMR.
 - Systematic review of the work by delegates of the OECD Committee for Agriculture.
 - Project proposal stage
 - Interim report
 - Final report

Figure: Potential economic impacts of antibiotic use in food animal production





Findings of case studies in European countries

- **Case studies**

- **Surveys in several European countries (Bel, Fr, Ger, Swe, Dk, Neth, Swit).**
- **Species covered: pigs, poultry and cattle**
- **Time period covered usually one calendar year**
- **Farmers participation was voluntary**
 - (e.g. usually more modern, better educated and younger farmers....)
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- **Surveys recorded the technical impacts & the economic impacts at farm level**



Findings of case studies from European countries (contd).

- **Lowering the use of antimicrobials in production had no apparent adverse impacts on animal performance.**
- **Small increase in profit margins on some farms, neutral on other farms.**
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- **Level of antibiotics usage often an issue of past “legacy” in production.**
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- **Modest changes in farm management and biosecurity practices are key aspects.**
- **Key role of veterinarians working closely with farmers on a farm by farm basis.**
- **Better understanding of the threat from AMR and the potential consequences to human, animal and environmental health.**



Findings of the work on China

- **Antibiotics are widely used in food animal production, driven by the key policy focus on food security**
 - China is the largest producer and user of antibiotics globally; accounts for over 40% of global usage in animal production.
 - High level of use is often linked to poor sanitary and animal production conditions.
 - Most of the antibiotic usage is aimed at promoting animal growth i.e. about 2/3 of the total figure.
 - Two species, pigs and poultry, account for about 85% of antibiotic usage.
 - Cost of antibiotics is low --- 1-3% of total production costs (e.g. often viewed as a cheap insurance policy).
 - The costs of alternative disease preventative measures are relatively high (e.g. vaccinations).



Findings of the work on China (contd.)

- **Growing concern over the quality of the antibiotics!**
 - An increase in the use of human antibiotics in animal production.
 - Lack of veterinarians in many rural areas – advice and expertise.
 - Livestock management practices are changing as farms become bigger with the use of more modern technologies.
- **Recent policy and regulatory changes aim to lower the use of antibiotics in animal production**
 - Move to phase out the use of CIA in animal production.
 - Use of antibiotics will be by prescription only and will be limited to 14 classes of antibiotics.
 - Greater focus on education, training and awareness of the impacts of antibiotic usage in animal production.



Findings of the work on Brazil

- **Brazil is one of the largest global producers and exporting of beef, poultry meat and pig meat.**
 - Antibiotics are widely used in intensive animal production, driven by a focus on cost competitiveness.
 - Up until recently there have been few restrictions on the use of antimicrobials in animal production.
 - Antimicrobials have been mainly used for growth promotion, mainly in the poultry and pig sectors.
 - Cost of antibiotics in animal production is estimated to be less than 1% of total costs.
 - Studies suggest that the withdrawal of AGPs would have a negative impact on animal productivity, and a rise in feed consumption of 3-5%.



Findings of the work on Brazil (contd.)

- **Recent policy and regulatory changes in Brazil.**
 - In 2017, Brazil ratified the recommendations of the UN High level Meeting on combatting AMR (2016).
 - In 2017, Brazil also ratified the G20 Leaders' Statement on AMR.
 - In June 2018, Brazil introduced its National Plan of Action on the Prevention and Control of AMR (2018-22).
 - Prudent use of antimicrobials
 - Restrict AMU to therapeutic purposes in animal production.



What lessons can be drawn...

- **Enhance the flow of information on the economic benefits & costs of antimicrobials in food animal production.**
 - Specific training and provision of better information on the economic impacts of AMU to key stakeholders ---farmers, veterinarians, etc.
 - Provide examples of best practices in terms of the optimal level of use on animal farms from research in other countries.
 - Improve diagnoses of animal diseases in order to optimise the class of antibiotics to be used, if at all.
- **Improve the availability of information and knowledge on alternative interventions, as well as the relative costs and benefits of these interventions.**
 - In 2019-20 Programme of work on AMR, OECD will be developing the MACC approach to assessing the relative costs of alternative interventions for selected countries, different species and production systems.



What lessons can be drawn(contd.)

- **Provide flexible regulations to facilitate adjustment at farm level, requires;**
 - Existence of quality veterinary services and legislation
 - Good understanding of the regulations by all stakeholders, and appropriate enforcement
 - Access to alternative treatments at an affordable price
- **Optimise the mix of management and biosecurity measures on the farm.**
 - Improve the overall management practices on the farm
 - Increase natural immunity through better housing, nutrition and breeding
 - Enhance internal and external biosecurity



What lessons can be drawn(contd.)

- **Take an inter-sectoral or “One Health” approach to minimise the negative externalities associated with AMR**
 - Agriculture and Food (food animals, companion animals, wildlife, crops, aquaculture)
 - Human health
 - Environment



Economic benefits/costs of AMU in animal production

» **Thank you**