

Case Study 1: Wine chain from Europe to China

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Wine chain from Europe to China – Authenticity, Testing, Traceability and Vulnerability



Nofima – Nofima AS



BfR – German Federal Institute for Risk Assessment



WU – Wageningen University



CNRIFFI – Nat. Research Inst. of Food and Fermentation Industries



NCIQ – Ningbo Entry and Exit Inspection and Quarantine Bureau



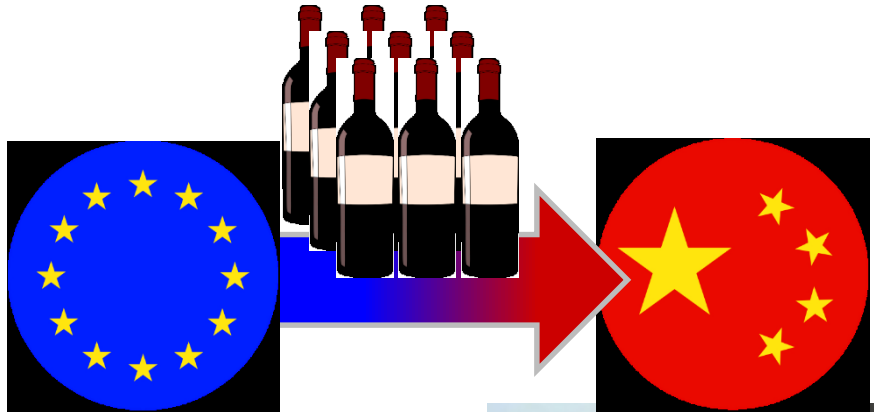
PolyU – Hong Kong Polytechnic University



CFSA – China National Center for Food Safety Risk Assessment



Definition of Problem – Fraud in EU-China wine chain



Bottles of fake wine are destroyed in Nanning.

Credit: Reuters, <https://p2d7x8x2.stackpathcdn.com/wordpress/wp-content/uploads/2013/06/Bottles-of-fake-wine-are-destroyed-in-Nanning.-Reuters-640x425.jpg>



Pathways to solution – EU-China wine chain

- Wine in Europe: >150 mhl per year, >40% exported
- Chinese production, consumption and import peaked around 2017
- pre-COVID 19 crisis: 6-7 mhl import
- Wine is shipped bottled or as bulk wine
- Hong Kong is important hub
- On-trade sales: in China even more important than in Europe
- Online-sales much more relevant in China, especially for imports



Report 10/2021 • Published March 2021

Mapping the local-global wine chain from Europe to China

Towards shared standards and benchmarks in wine traceability and authenticity

Silje Elde, Patrick Beng Sardahl, Marianne Svorsten, Thomas Myrud, Céline Boechat, Cheryl Cordeiro & Petter Olsan



<https://nofima.no/en/publication/>



Pathways to solution – EU-China wine chain

Risks regarding authenticity

- Brand driven consumers, foreign languages:
Counterfeiting or mislabeling
- **Adulteration** of wine is technically easy, esp. before bottling: Enhancements, dilution, substitution/blending
- From European producer to Chinese consumer - fragmented wine business with multi-level sales routes: **Traceability issues**

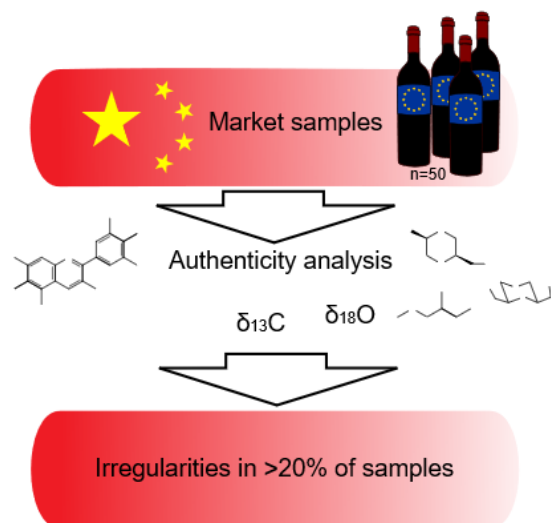


Pathways to solution – Wine analysis

- Sharing of established methods

Methods on the website

- Authenticity of key products
- Safety issues: Dioxins...



Müller, T., et al. (2021). "What's in a wine? – A spot check of the integrity of European wine sold in China based on anthocyanin composition, stable isotope and glycerol impurity analysis" *Food Additives & Contaminants: Part A* **38**: 1289-1300.

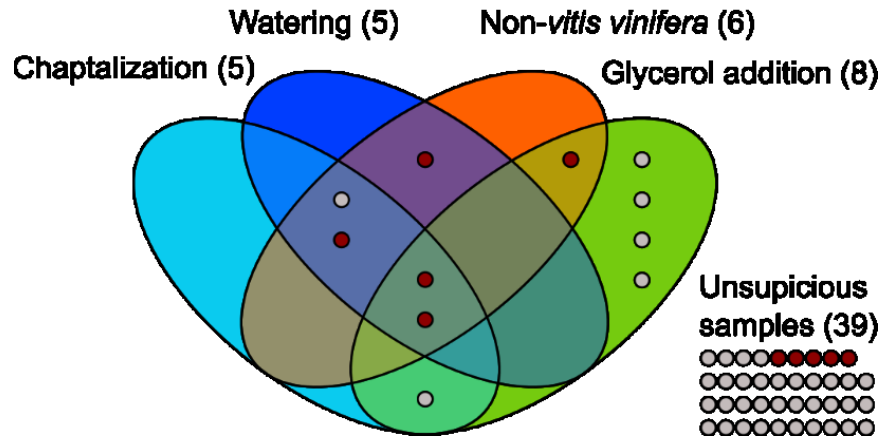


Pathways to solution – Wine analysis

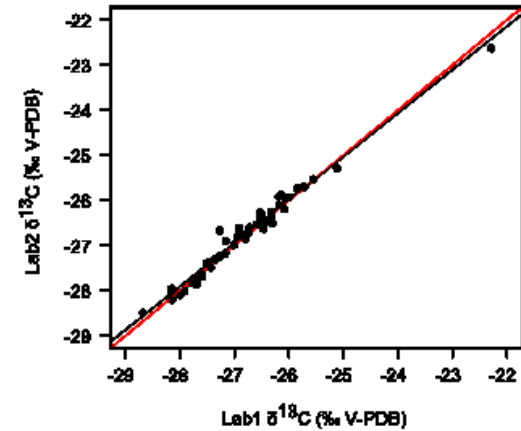
A

	Suspicious	Unsuspectus
Based on labelling	10 (●)	40 (○)
Based on analysis results	11	39

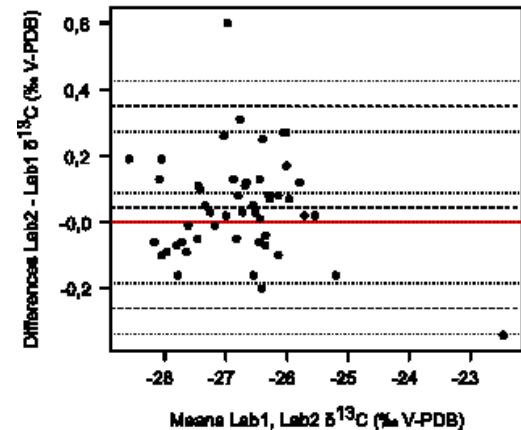
B



A



B



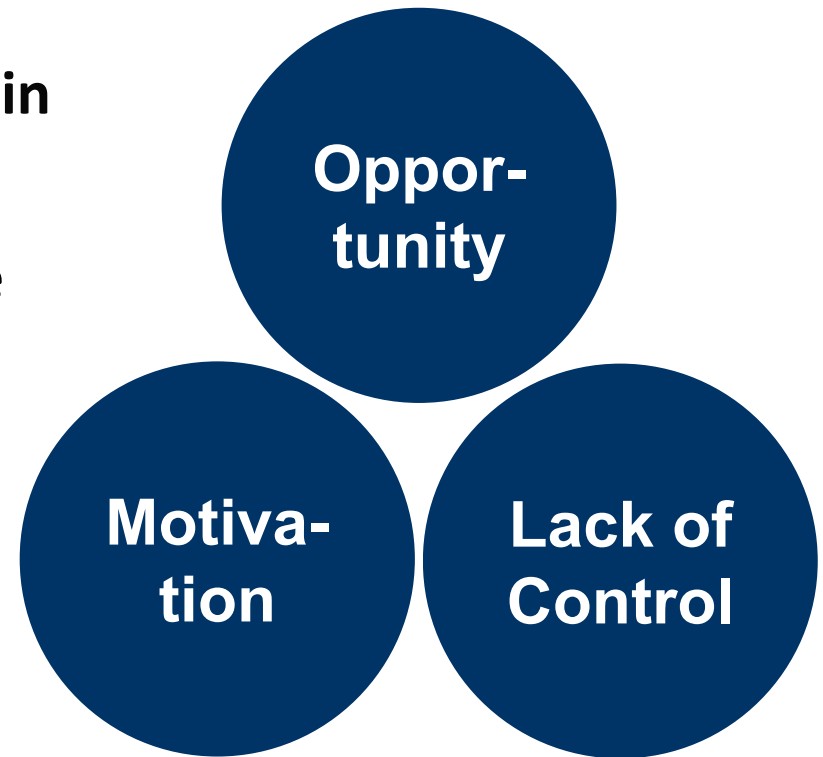
Müller, T., et al. (2021). "What's in a wine? – A spot check of the integrity of European wine sold in China based on anthocyanin composition, stable isotope and glycerol impurity analysis" *Food Additives & Contaminants: Part A* **38**: 1289-1300.



Long-term impact

Wine fraud vulnerability assessment

- For companies in the wine chain
- Systematically covers the three factors of vulnerability to fraud
- Based on SSAFE tool, but simplified & adapted to the wine chain



Risk levels:

High

Medium

Low

Ruth, S., et al. (2017). "Food fraud vulnerability and its key factors." [Trends in Food Science & Technology](#) **67**: 70-75.



Long-term impact

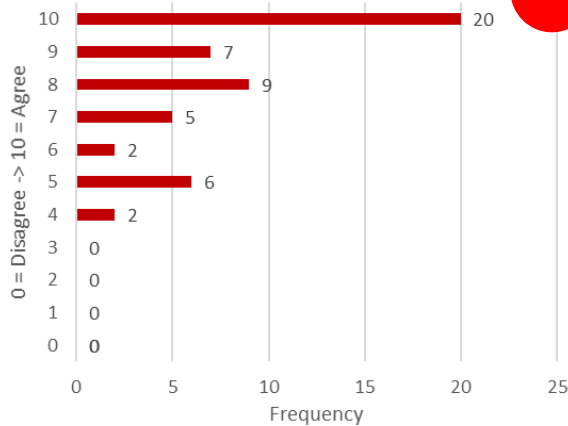
10 reflects high vulnerability to fraud
0 reflects a low vulnerability to fraud

Opportunities (Q1-Q2)

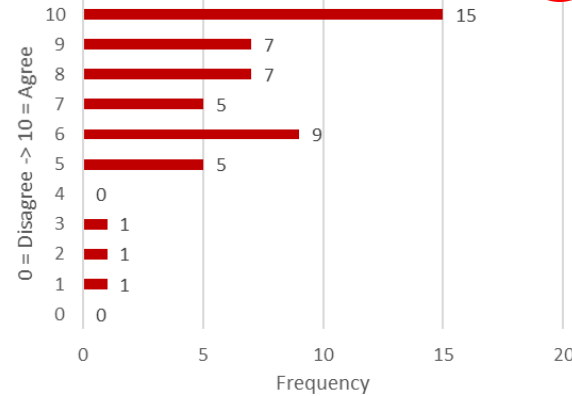
Motivations (Q3-Q6)

Controls (Q7-Q10)

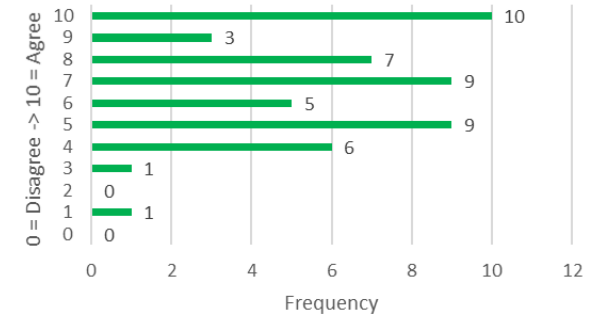
Q1: Wine is easily adulterated or counterfeited



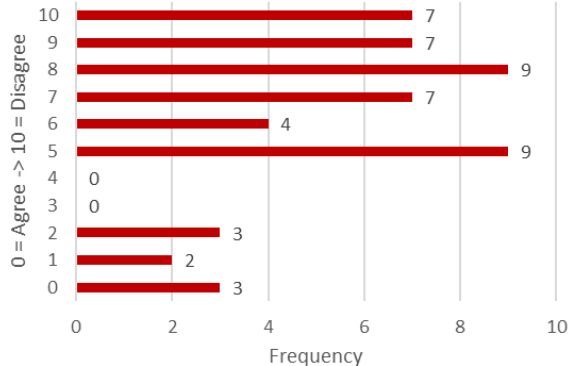
Q3: A large price difference between wines produced in Europe and Asia exists



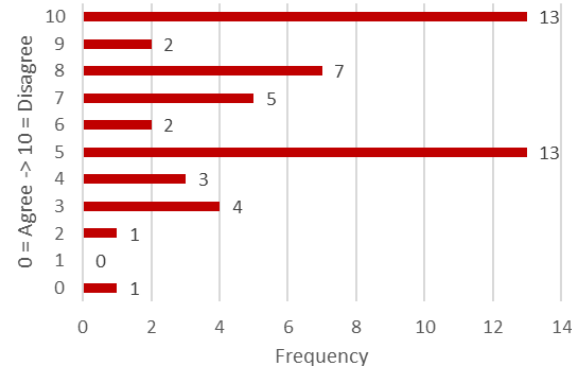
Q8: Few businesses in the supply chain of European wines to Asian consumers have implemented extensive track and trace systems (like blockchain) to track their wines along the supply chain



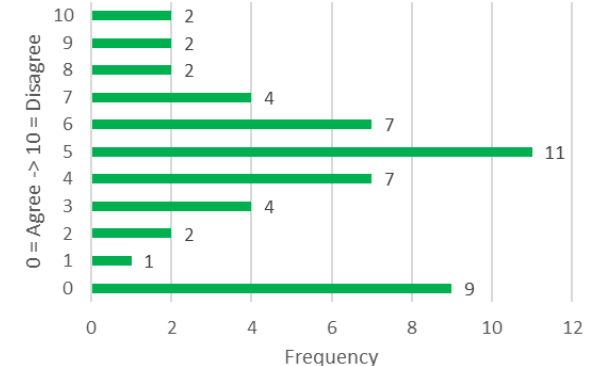
Q2: The supply chain of European wines to Asian consumers (production to end-users) is transparent



Q6: There are no businesses in the supply chain of European wines to Asian consumers with former criminal offences



Q10: Along the supply chain of European wines to Asian consumers, food fraud-related legislation is strictly enforced

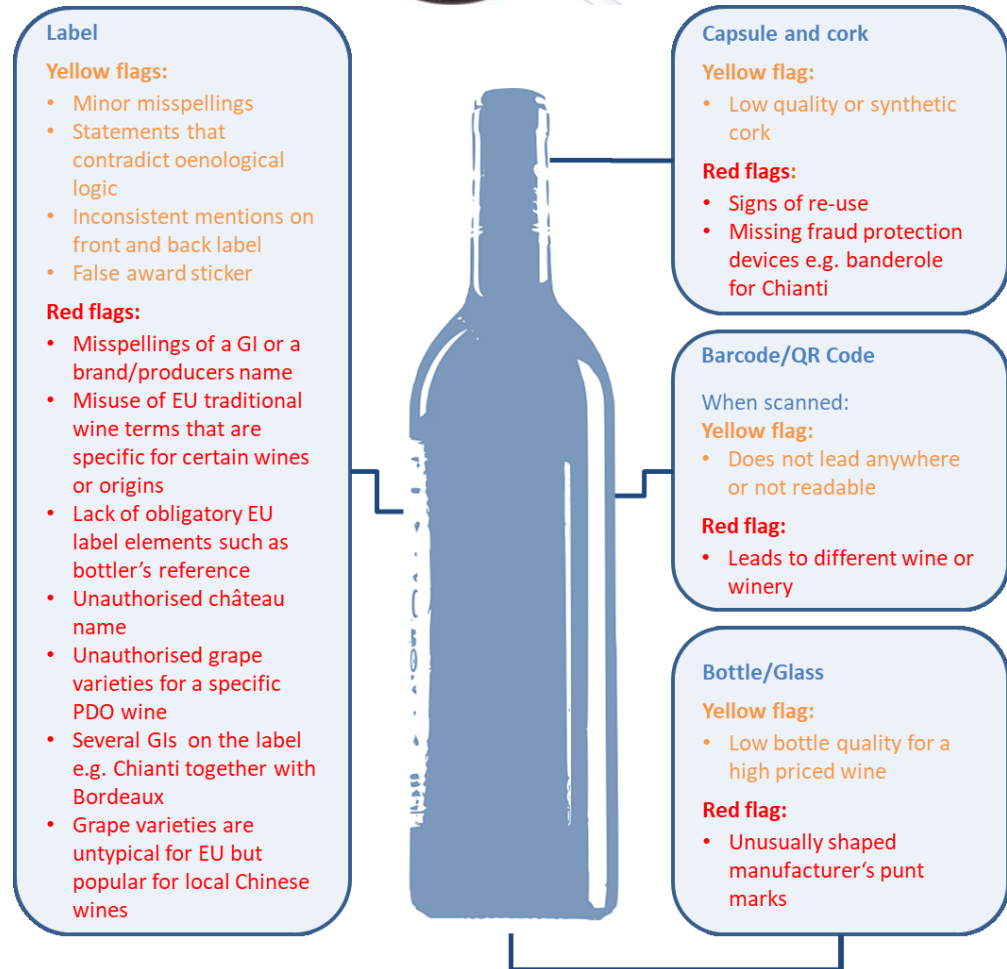
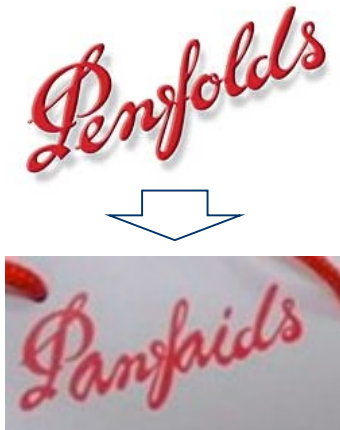


Frequency diagrams of respondent scores



Long-term impact

- 1) Knowledge/education
- 2) Traceability
- 3) Analysis and enforcement



www.euchinasafe.eu



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Disclaimer: The content of this presentation does not reflect the official opinion of the European Commission and/or the Chinese government. Responsibility for the information and views expressed therein lies entirely with the author(s).



