French Consumers' Preference Towards Eco-labeled Seafood

Xianwen Chen, Frode Alfnes, and Kyrre Rickertsen

UMB School of Economics and Business
Norwegian University of Life Sciences

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Emails: xianwen.chen@umb.no, frode.alfnes@umb.no, and kyrre.rickertsen@umb.no.


Alternative 1
Prix 300 g : 4,45 €
Alternative 2
Prix 300 g : 5,95 €
Alternative 3
Prix 300 g : 8,95 €
Dos de saumon
Médaillon de lotte
Dos de cabillaud
300 g
Caisse
1

Eco-labels

- You probably have seen one of these eco-labels before

Have you seen these labels as well?

What do eco-labels do?

- To consumers
  - Create welfare, knowing that the product is environmental friendly.
- To producers
  - A chance to differentiate from competitors
  - An opportunity to exploit the welfare created by eco-labeling

Eco-labeling in seafood

- Eco-labeling as a strategy
  - EU consumers are increasingly aware of the ethics and sustainability of fish production.
- Importance of French market to Norwegian fish producers
  - France is the top Norwegian fish importer in value

The stated preference choice experiment

Participants and background survey

- Stated choice experiments run as last part of an experiment with real products, tasting and sales.
- 140 participants, that made a total of 4,960 choices
- Screening
  - Participants were asked on phone about their purchase frequencies.
  - Had to buy and eat fish at least once every second month
- Background survey with attitudes, knowledge and socioeconomics

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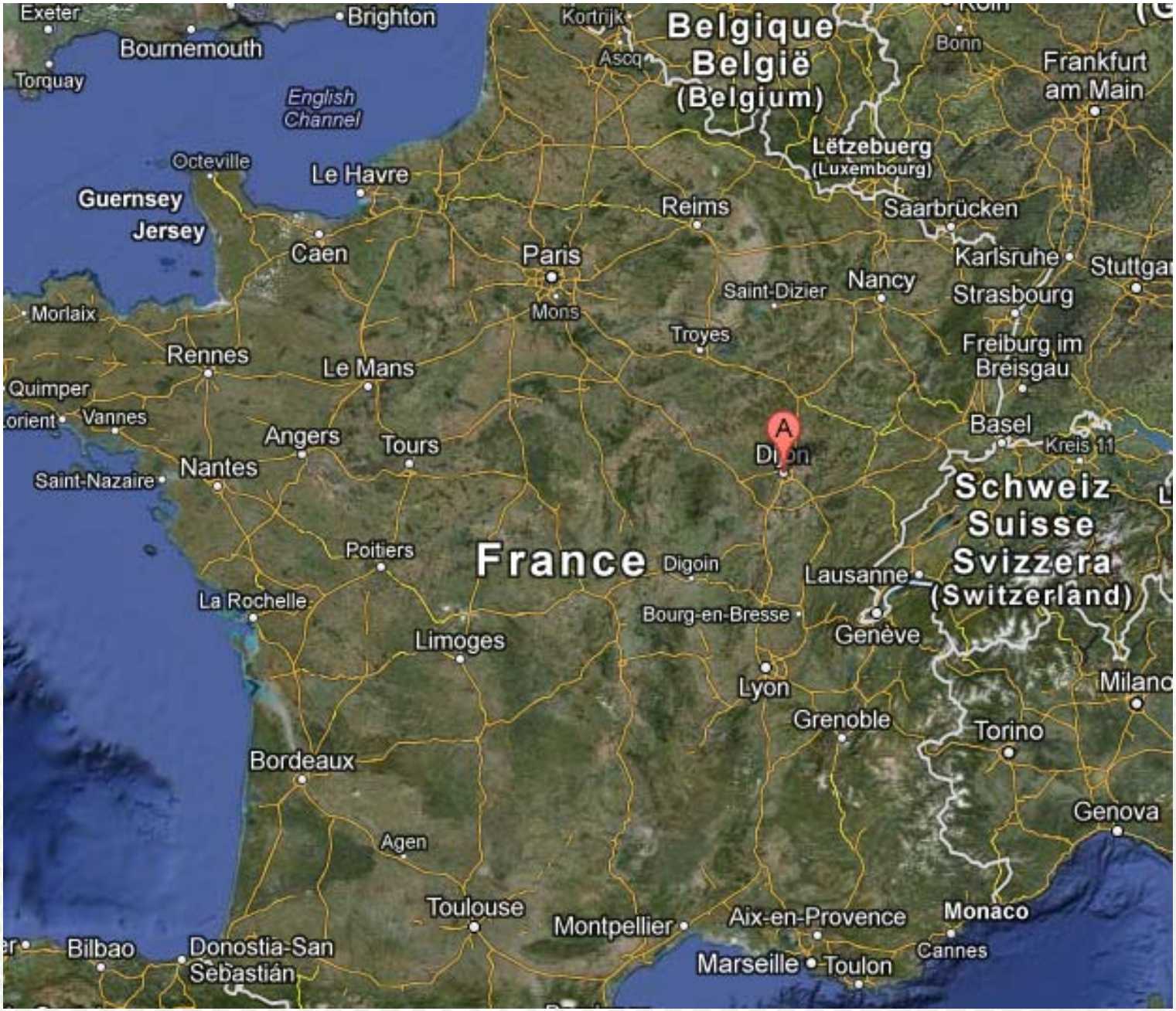

Products included in the stated choice experiment

- Four types of Norwegian farmed fish products
  - Non- and AB labeled farmed cod (FC1 and FC2)
  - Non- and AB labeled farmed salmon (SA1 and SA2)
- Three types of wild North-Atlantic fish products
  - Non- and MSC labeled wild cod (WC1 and WC2)
  - Non-labeled wild monk (MO)
- One type of Vietnamese farmed fish product
  - Non-labeled farmed pangasius (PA)

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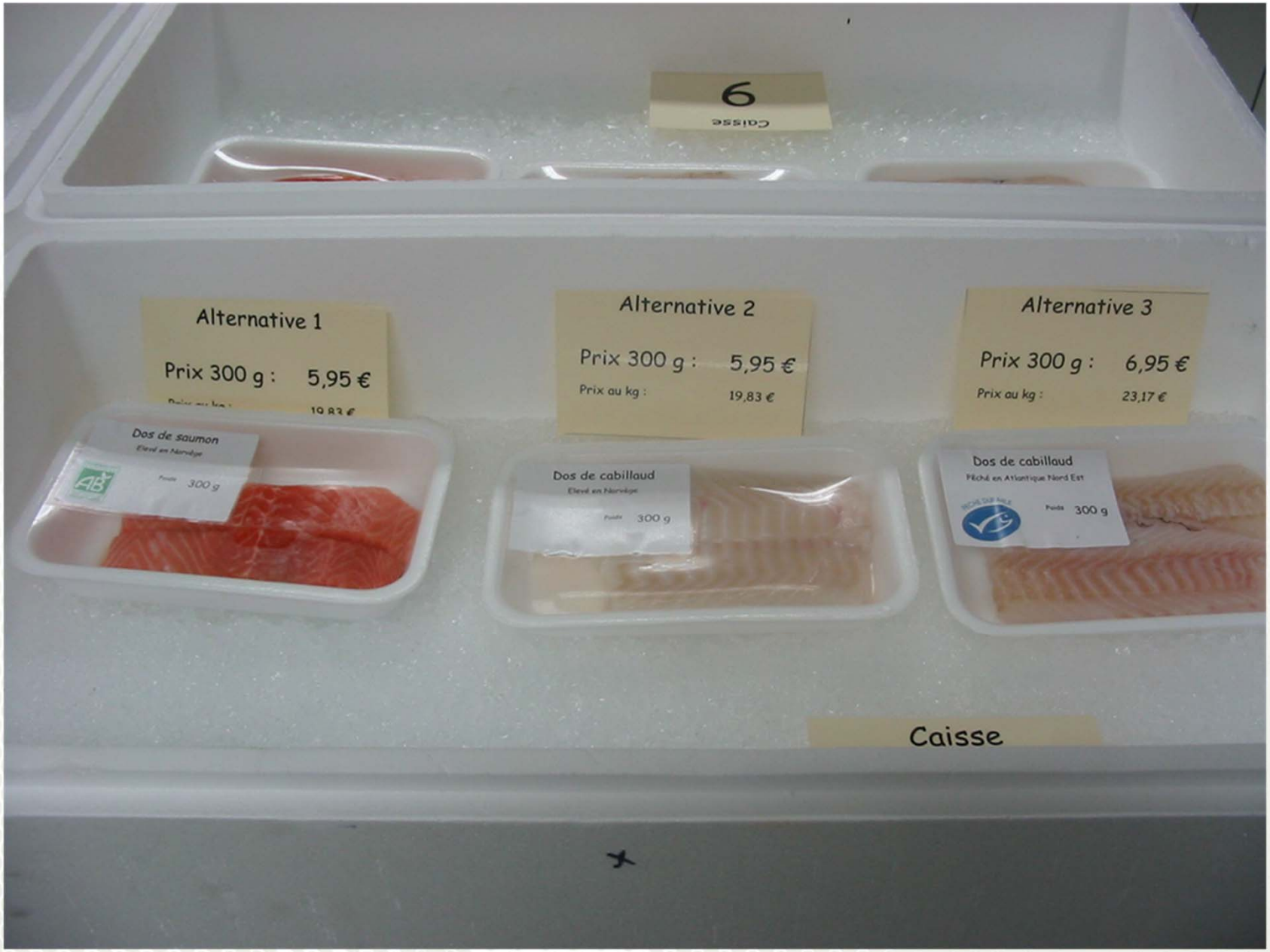
Choice design

- Eight products and eight price points for each product
- None of these alternatives
- Products and prices varied with the design to avoid ordering effects
- Restricted to only include one product ones in each scenario
- Fractional factorial design created with the SAS macro MktEx (with zero priors)
- Design with 112 scenarios, blocked into seven sub-designs of 16 scenarios, which each was used in two sessions.
- Order of scenarios within each sub-design randomized
- D-efficiency of total design: 96.52


Alternative 1
Prix 300 g : 6,95 €
Prix au kg : 23,17 €
Alternative 2
Prix 300 g : 9,95 €
Prix au kg : 33,17 €
Alternative 3
Prix 300 g : 9,95 €
Prix au kg : 33,17 €
Médaillon de lotte
Pêché en Atlantique Nord Est
Poids 300 g
Dos de cabillaud
Elevé en Norvège
Poids 300 g
Dos de cabillaud
Pêché en Atlantique Nord Est
Poids 300 g
Caisse
10


6
Caisse
Alternative 1
Prix 300 g : 5,95 €
Alternative 2
Prix 300 g : 5,95 €
Prix au kg : 19,83 €
Alternative 3
Prix 300 g : 6,95 €
Prix au kg : 23,17 €
Dos de saumon
Dos de cabillaud
Dos de cabillaud
300 g
Caisse

Box 1 I choose (check ✓one)	Alternative 1 € ☐	Alternative 2 € ☐	Alternative 3 € ☐
	None of these three alternatives		☐

Box 2 I choose (check ✓one)	Alternative 1 € ☐	Alternative 2 € ☐	Alternative 3 € ☐
	None of these three alternatives		☐

Models

- Random parameter multinomial logit model (RPML; mixed logit model)
  - Price coefficient specified to be a constant (not a random parameter)
- Generalized multinomial logit model (GML; generalized mixed logit model) (Fiebig et al. 2000)
  - Estimated in WTP space
- Specifications in both models:
  - Normal distribution
  - Panel data
  - Correlation
  - Halton draw
  - 2000 draws per iteration

Variable	RPML	GML
Price	-0.27*** (0.01)	1.0 (fixed)
s.d.	2.80*** (0.29)	0.0 (fixed)
Wild cod	5.11*** (0.38)	-20.30*** (0.70)
s.d.	2.30*** (0.23)	9.08*** (1.11)
Farmed cod	4.45*** (0.33)	-18.80*** (0.52)
s.d.	2.04*** (0.18)	6.89*** (0.56)
Farmed salmon	4.73*** (0.28)	-17.89*** (0.53)
s.d.	3.85*** (0.34)	7.13*** (0.53)
Wild monk	5.47*** (0.46)	-22.29*** (0.90)
s.d.	3.36*** (0.51)	13.17*** (1.09)
Farmed pangasius	-0.53 (0.56)	1.91 (2.33)
s.d.	3.36*** (0.51)	12.89*** (2.14)
MSC label	0.36 (0.24)	-1.87** (0.75)
s.d.	1.32*** (0.50)	4.32*** (0.97)
AB label	0.70*** (0.14)	-2.13*** (0.50)
s.d.	0.99*** (0.16)	3.00*** (0.53)
Log likelihood	-1977.87	-1916.42
Pseudo R-squared	0.60	0.61
BIC	4233.5	4126.0

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WTP estimators (EUR/KG)

Attribute	RPML		GML	
	Distribution	Sample	Distribution	Sample
Wild cod	18.89	18.81	20.30	19.13
Farmed cod	16.46	16.49	18.80	17.95
Farmed salmon	17.52	17.66	17.89	17.66
Wild monk	20.25	20.12	22.29	22.38
Farmed pangasius	-1.95	-1.46	-1.91	-1.96
MSC label	1.34	1.16	1.87	1.73
AB label	2.59	2.58	2.13	1.99

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  - Statistical the same
  - Statistically different

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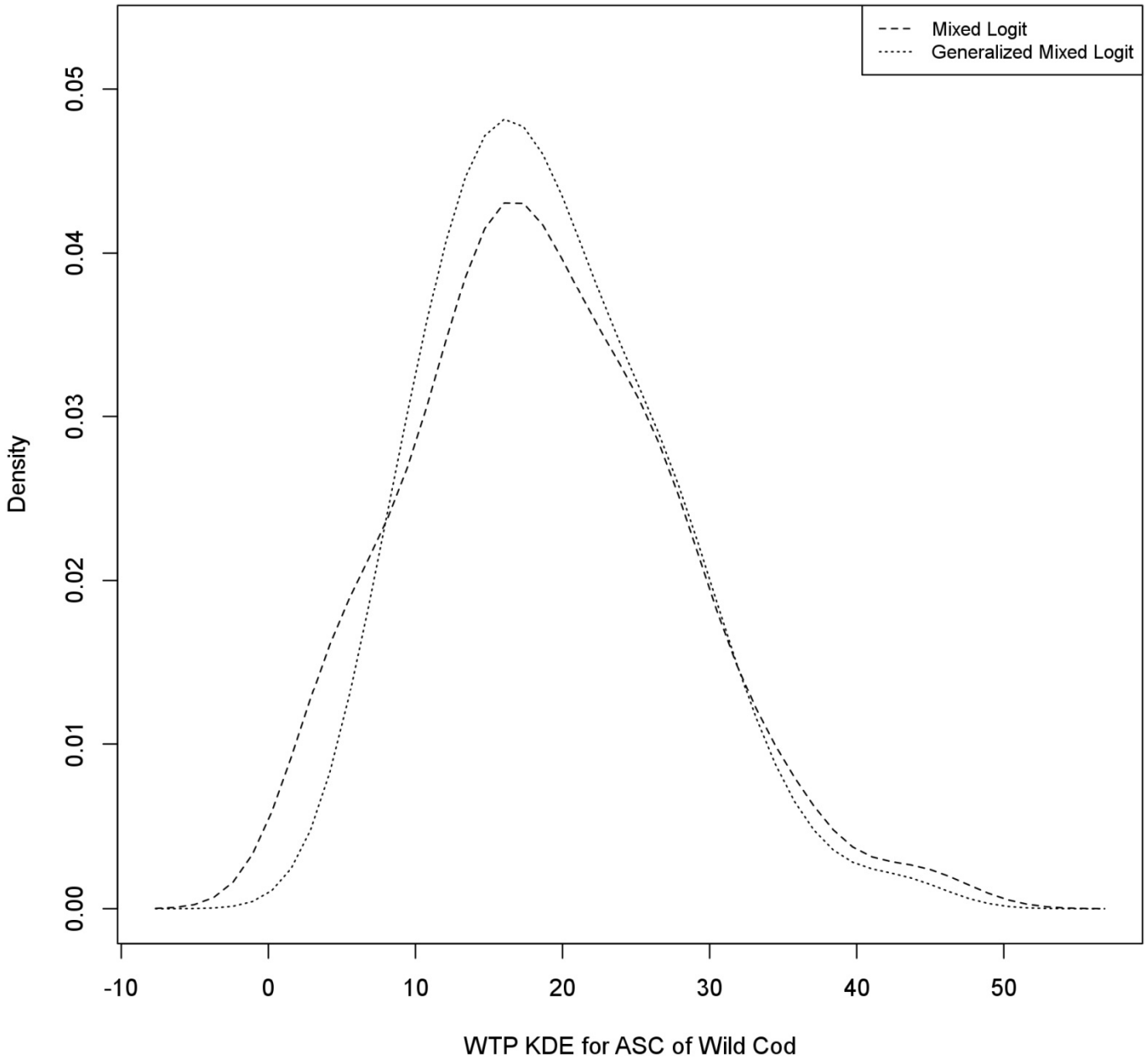
Mixed Logit
Generalized Mixed Logit
Density
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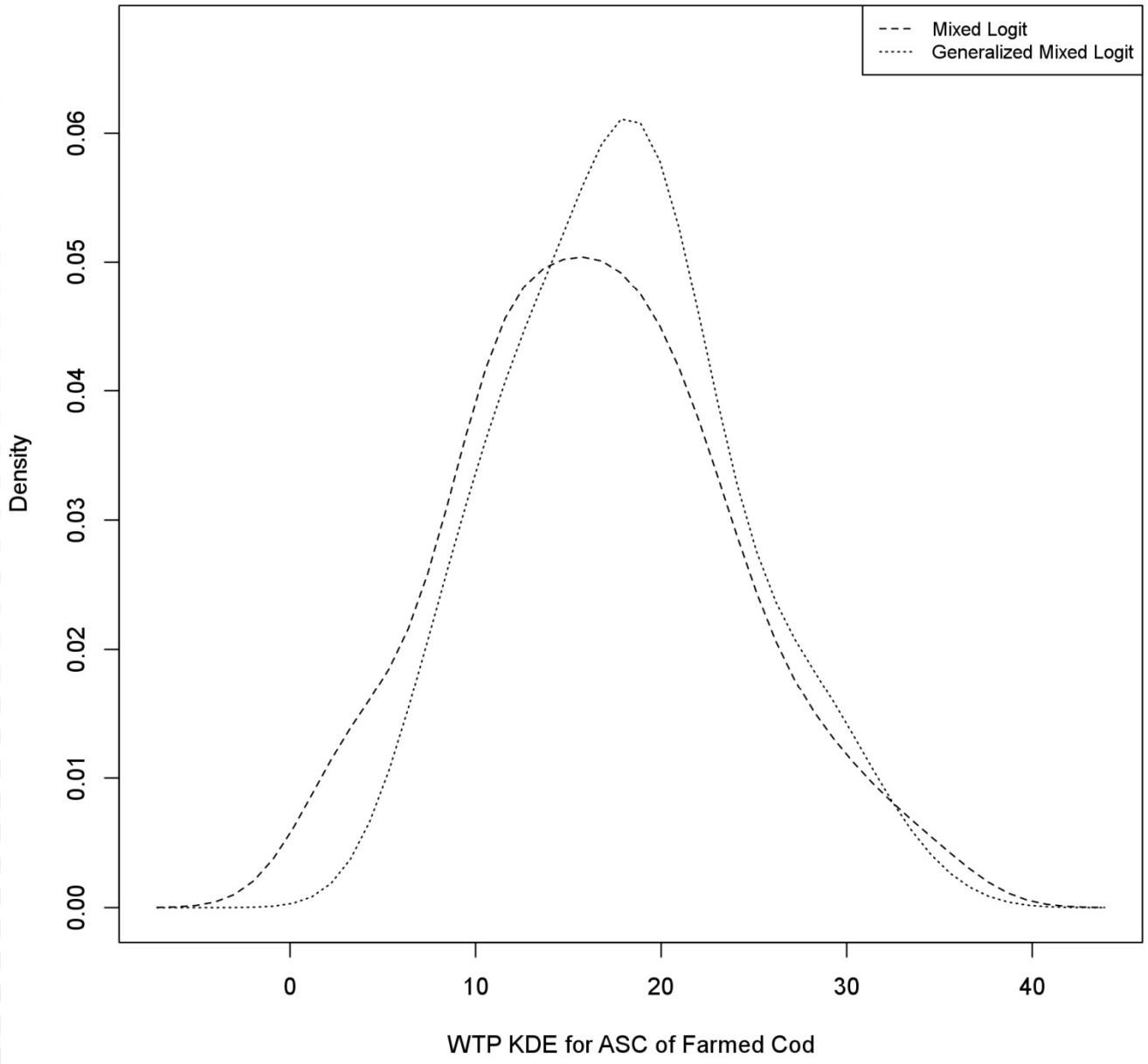
0.01
0.02
0.03
0.04
0.05
-10
0
10
20
30
40
50
WTP KDE for ASC of Wild Cod


Mixed Logit
Generalized Mixed Logit
Density
0.00
0.01
0.02
0.03
0.04
0.05
0.06
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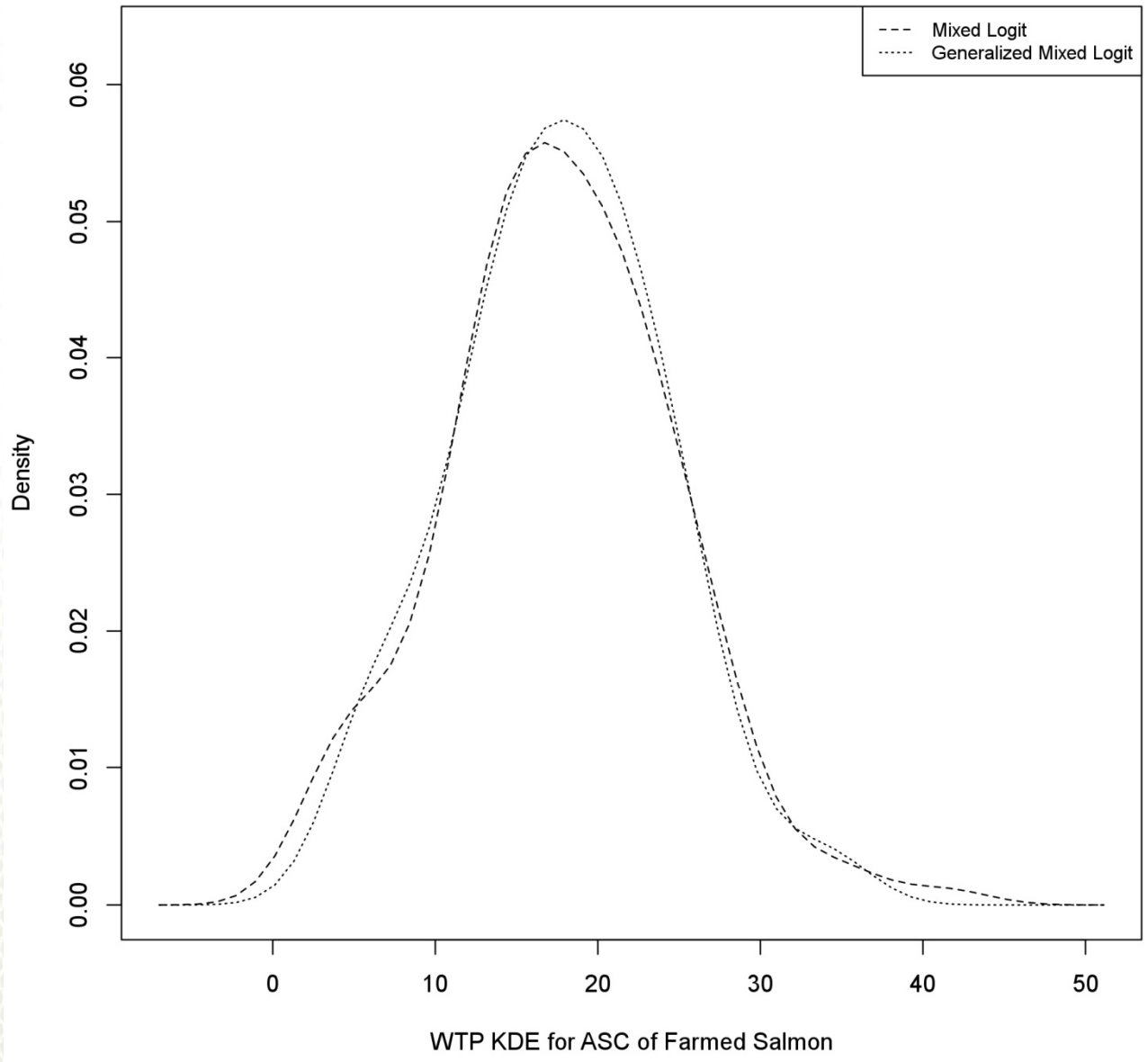
10
20
30
40
WTP KDE for ASC of Farmed Cod


Mixed Logit
Generalized Mixed Logit
Density
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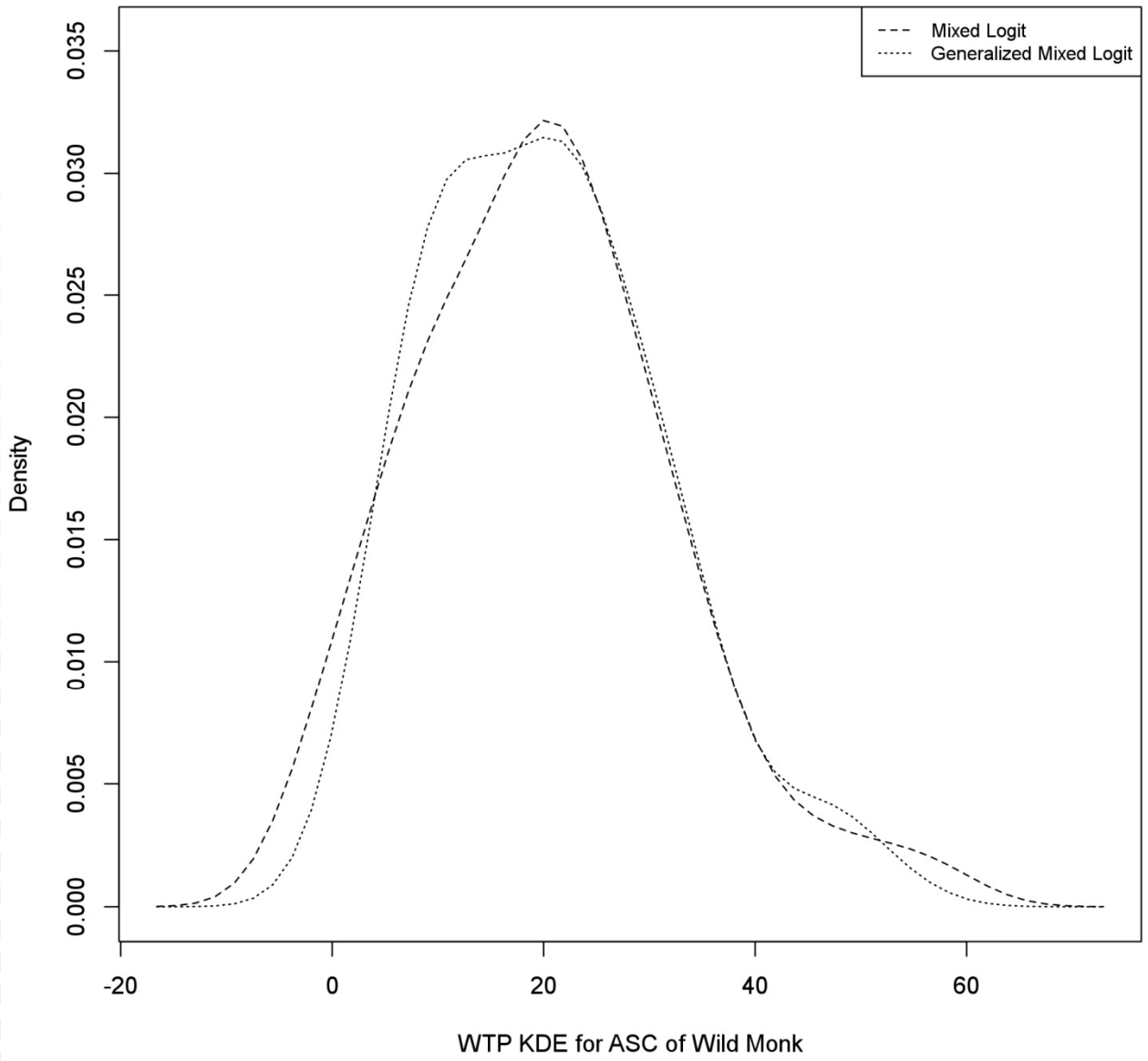
0.03
0.04
0.05
0.06
0
10
20
30
40
50
WTP KDE for ASC of Farmed Salmon


Mixed Logit
Generalized Mixed Logit
Density
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0.020
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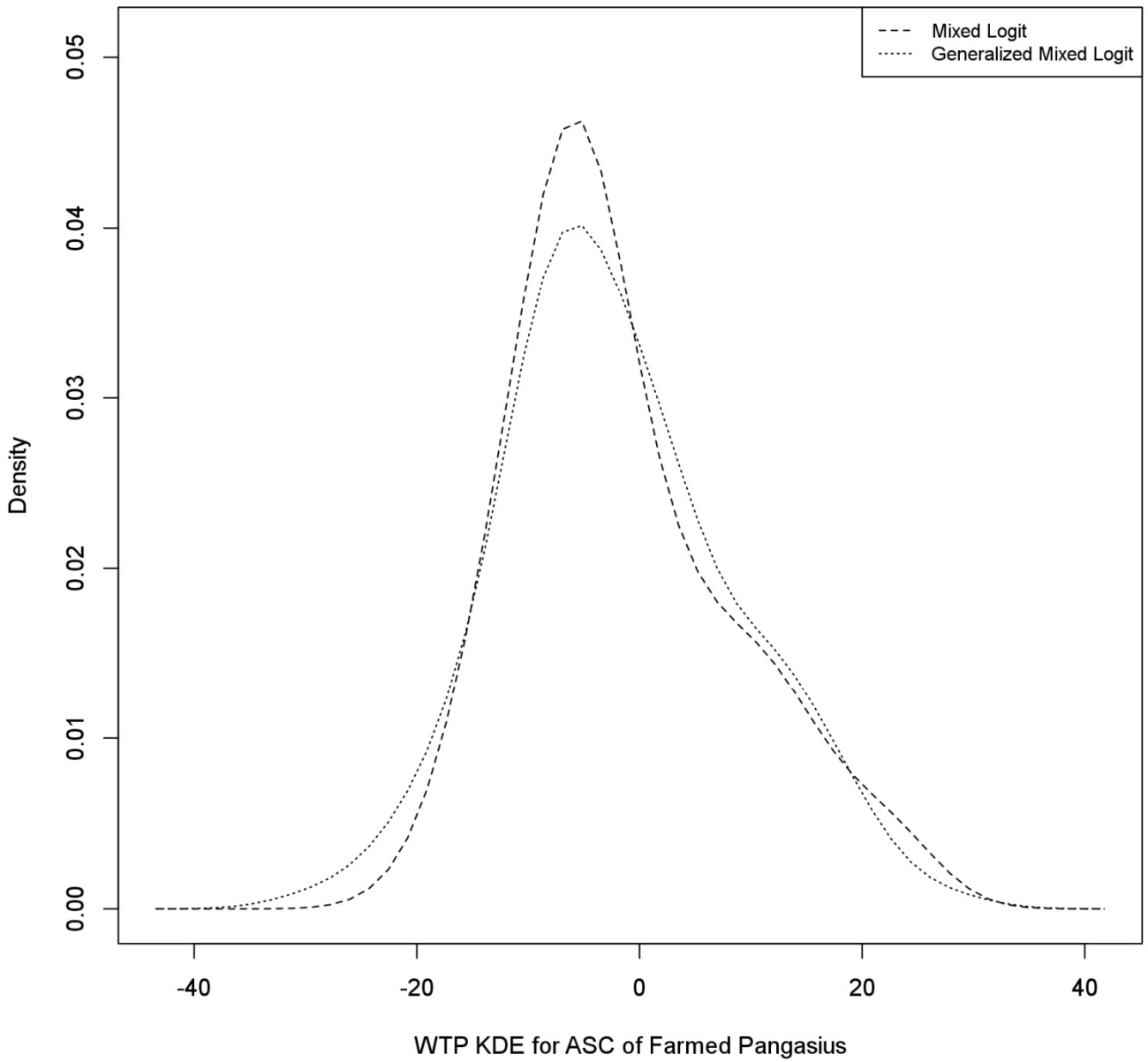
0
20
40
60
WTP KDE for ASC of Wild Monk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Generalized Mixed Logit
Density
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0.04
0.05
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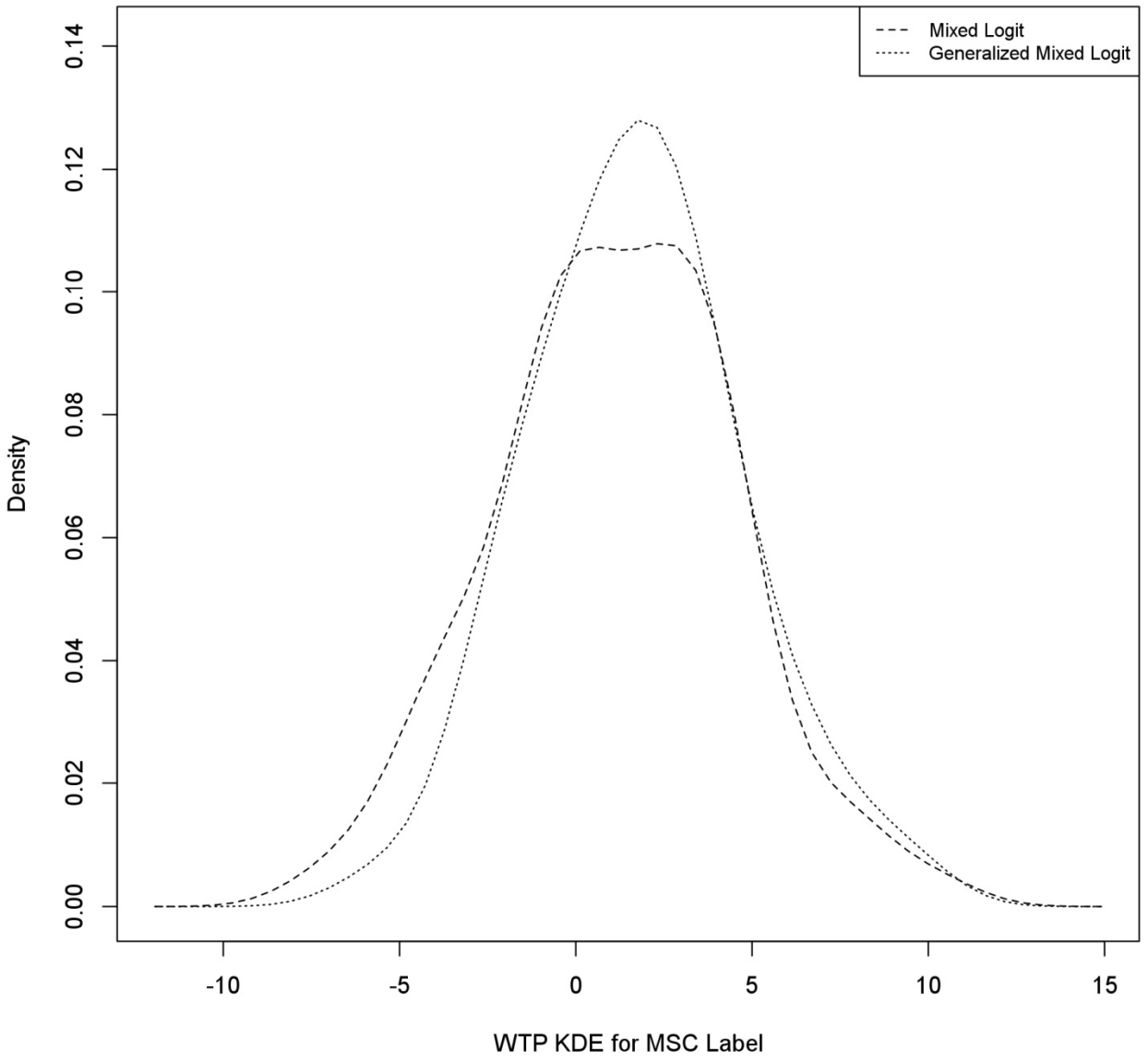
-20
0
20
40
WTP KDE for ASC of Farmed Pangasius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Density
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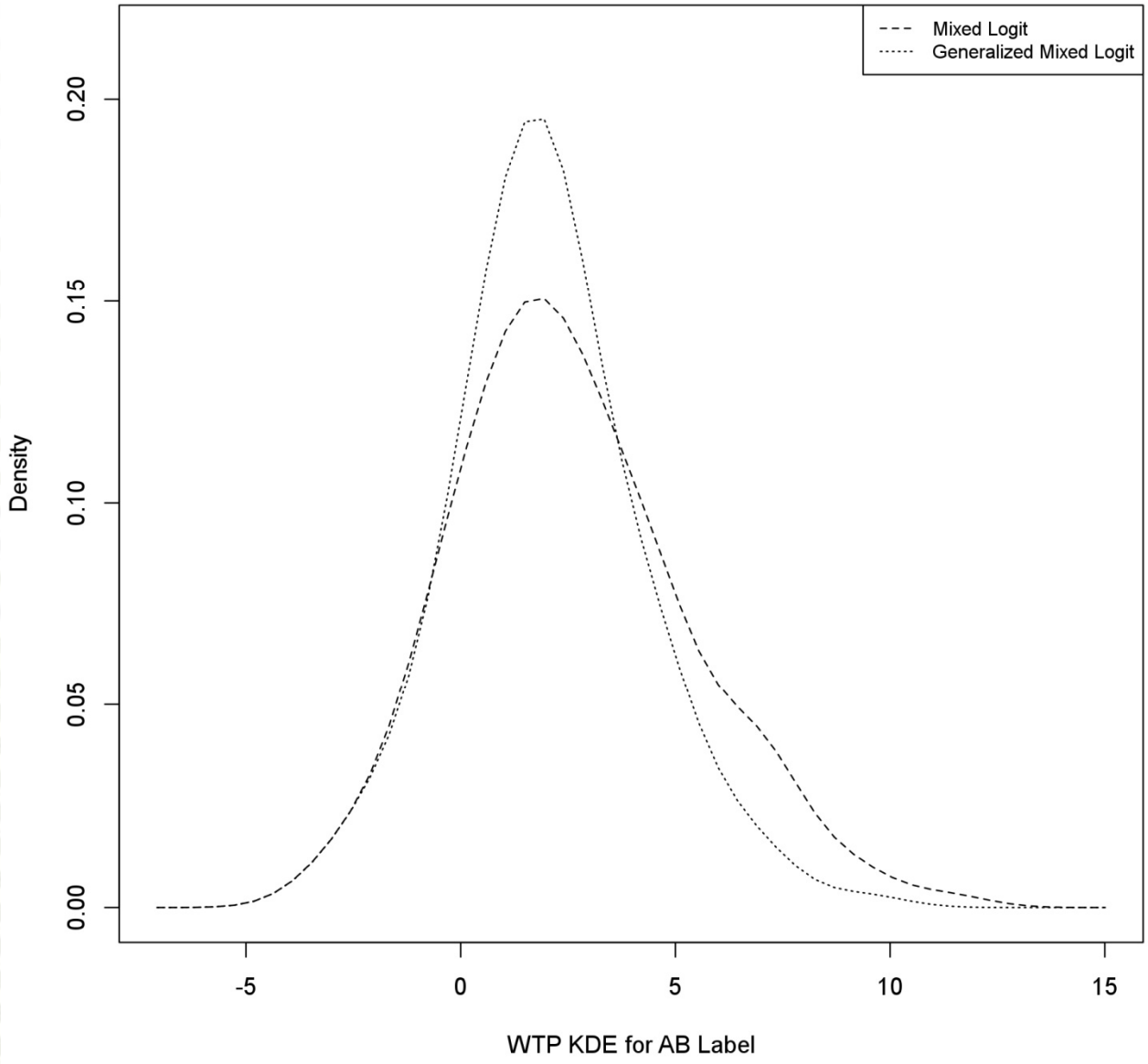
WTP KDE for MSC Label


Mixed Logit
Generalized Mixed Logit
Density
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0.10
0.15
0.20
-5
0
5
10
15
WTP KDE for AB Label

Questions

- Does it make sense to use paired t test to compare means from two estimated WTP for the same sample of participants?

Questions

- Let's call WTP estimators from estimated distribution parameters *population WTP estimators* and WTP estimators from means of estimated individual WTP estimators *sample WTP estimators*.
  - Population WTP estimators are the predicted population means
  - Sample WTP estimators have more data support
- Which one shall I (not to) use when comparing WTP estimators for the same attribute, when WTP estimators are from two models of the same data set?

Questions

- What else can we get from the kernel density estimation?

Questions

- What else do we need to conclude whether WTP estimators from two models of the same data set are the same, close, or different?

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Thank you!