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Session 4 – The Determinants of Domestic Water Use

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1. Water Consumption (1)

1.1 Survey Results

- Effect of charging water per unit: -0.2432^{**} .
- Difference in water consumption due to water costs: -0.561^{***} (OECD average).
- Price elasticity of water demand: -0.88^{***} in Italy, -0.48^{***} in Mexico, -0.38^{***} in Korea.
- Household factors for higher water costs: income (+), adults (+), children (+), size of residence (+), age (+).
- Water-saving behaviour: volumetric charging is effective.
- Factors favouring lower water consumption: price.

1. Water Consumption (2)

1.2 Korean Households

	Water Consumption (Kl/y)			Water Price (Euro/Kl)			Household Size (#)		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
Korea	508	220	111	0.667	0.361	157	3.704	4	1000
Recalculated	375 lpcd	163 lpcd		1,134 won	613 won				

* mean household size value was used * 1 Euro = 1,700 South Korean won

- Official Statistics

water supply per capita: 363 liters in 2005

water price: 577 won (82% cost recovery)

1. Water Consumption (3)

1.2 Korean Households: water burden

Country	Total water bill as % of total income
Korea	0.46
10 Nations	0.86

- OECD water synthesis report (2008): 0.3% in Korea.
- Water-saving behaviour in Korea: negligible except for turning off water while brushing teeth.
- Water-saving behaviour in Australia: significant; possibility to reduce use by 26%.

2. Water-Efficient Equipment (1)

2.1 Survey Results

- Strong statistical direct relationship between ownership status and environmental attitude.
- People are more likely to use indoor water-efficient equipment when metered and charged for water individually.
- Eco-labeling has a positive effect.

2. Water-Efficient Equipment (2)

2.2 Korean Behaviour

	Efficient washing machine	Low-volume or dual-flush toilets	Water-flow restrictor tap/shower head	Water tank to collect rain
Korea	0.31	0.31	0.40	0.11
OECD	0.52	0.51	0.54	0.17

- According to official statistics, 37% of toilets in Korea are dual-flush toilets.
- Statistical direct relationship between ownership, environmental commitment and water conservation behaviour.
- Eco-labeling is important in Korea, France and Italy.

2. Water-Efficient Equipment (3)

2.3 Policy Implications

- Lack of knowledge about water bills—more information is required.
- B/C analysis is needed for better water consumption control.
- For example, in Korea:
 - Comprehensive water demand management in effect since 2000.
 - Total water supply has fallen by 14.3% (380 L in 2000 compared to 363 L in 2005).
 - 700 million USD in cost savings from 2000-2006.

3. Demand for Water Quality (1)

3.1 Survey Results

- The WTP for better tap water quality: average 7.5% of the median annual water bill, or 7-24 Euros annually per household.
- Italy, Korea and Mexico: 8.8%, 6.4% and 10.1%, respectively, of the median annual water bill.

3. Demand for Water Quality (2)

3.2 Korean Behaviour

% of Koreans satisfied with tap water	% of Koreans dissatisfied due to taste	% of Koreans dissatisfied due to health concerns
30	11	86

- Lower satisfaction rate: past experience with water pollution.
- National survey in 2008: 36.5% of respondents were satisfied.
- Reasons given for dissatisfaction include: feeling of uneasiness (40.0%); smell (19.5%); rust present in tap water (11.7%); taste (10.9%).
- Only 24.7% of respondents were in favour of an increase in the price of water.

3. Demand for Water Quality (3)

3.3 Limited WTP due to survey design, missing data

4. CONCLUSION

- The OECD's research provides a better understanding of household behaviour in terms of water use, saving and quality.
- Further research could include analyses of different policy measures concerning innovative water-saving equipment.