Paying for urban water services: some insights from across the ditch.

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Introduction

- An emotional and emotive issue?
- Managing water resources and managing water services.
- The pricing of water or pricing for the supply of water?
- Urban Water service investment in NZ
- The Australian problem
- The pricing choice
- Findings
- Some Issues worthy of consideration
An emotional and emotive issue?

**Kapiti voters vow to fight water meter**  
*The Dominion Post, 29 August 2007*

**Charging for water is ghost of policies past**  
*“Scoop” independent news, 30 August 2007*

**Whatever happened to water meter consultation?**  
*Kapiti Observer, 13 September 2007*
Competing demands for water resources and water services

- The right to water
- Water resources and the tension between rural and urban demands
- Rural infrastructure needs versus urban infrastructure needs
- Domestic versus non-domestic pricing tension
- Transparency and accountability in water resource and water services management
The pricing of water or pricing for the supply of water?

A Critical Distinction?
Some Quick Sample Stats

• Water infrastructure investment 2005/06 for councils excluding regional councils and Dunedin City was valued at $4,309,981,621 (source: Annual Reports – 72 councils)

• Wastewater infrastructure investment 2005/06 was $5,093,036,751 (71 councils excluding Dunedin City and Manawatu District Council)

• It was not possible to discern from Annual Reports, Annual Plans & Long-Term Council Community Plans (LTCCPs) how current rates are modelled.
Some Observations & Anecdotal Evidence

• Water services is supported by a large infrastructure investment in NZ
• Differing levels of pricing sophistication across councils
• Pricing model construct difficult to determine from annual reports, annual plans, LTCCP, etc.
• A different approach to sustainable management of water resources and water services
The Australian Problem

- Focussing the debate – COAG, 1994
- Under-pricing of water services (NCC, 1997)
- Existing pricing coincidently considers cost of service provisioning (DNR, 1987; DCILGPS, 2000)
- Australia is the driest inhabited continent in the world (NWC, 2005)
- Adoption of user pays pricing represents a major strategic change
- Water pricing has historically been politically sensitive (PWD, 1984; DNR, 1988; Miller, 1999)
Some Background

• Water driven settlement and the right to water.

• Lumpy investments, rate spikes and political sensitivity.

• Queensland and secession

• Council of Australian governments
Political implications of the rate spike/jump

The Rate Jump Scenario

Rate $

Capital Works Year
The Relationship

Federal and State Governments

Regulatory (pricing) and Grants, Soft Loans, etc.

Local Government

Water Entities

Management

The Electorate

As Stakeholders

as Users

Supply of water services
The Pricing Choice

The access charging:

\[ R_{ac} = FBC + xV_{exc} \]

Where:

- \( R_{ac} \) = access charge revenue.
- \( FBC \) = Fixed Base Charge calculated as a politically determined percentage of unimproved/improved land value and, in some cases, a predefined service consumption allowance (life-line limit).

- \( X \) = the units of service consumed over and above the predefined service consumption allowance.

- \( V_{exc} \) = a politically determined charge per unit of excess water services consumption.
The pricing choice (Cont’d.)

The proposed pricing formula:

\[ R_{up} = FC + xVC + r \]

Where:

- \( R_{up} \) = User pays revenue.
- \( FC \) = Fixed direct and indirect overhead costs for the supply of water services that are insensitive to the levels of supply (DCILGPS, 2000a: 13).
- \( X \) = # of units of service consumed.
- \( VC \) = Direct and indirect variable costs per unit of service supplied.
- \( R \) = real rate of return (RROR) on infrastructure investment.
The pricing choice (Cont’d.)

Given that the user pays formula promotes a long-run marginal cost approach, the variable cost ($VC$) per unit of service component is:

Where:

$Oam$ = per service unit contribution toward operations and maintenance costs less depreciation, interest and other financing/non-cash charges (DCILGPS, 2000a: 13).

$Os$ = per service unit contribution to operations support.

$a_{rra}$ = per service unit contribution to planned future asset renewal, replacement and/or augmentation (10 – 25 yrs planning horizon, 20 – 25 year horizon recommended DCILGPS, 2000a: 9 & 15).
What is the intent of the ‘user pays pricing approach?"

• The sustained supply of water services through consideration of:
  – Current and future operating and maintenance cost; and,
  – Future asset renewal, replacement and augmentation needs.
• Anchor point for these estimations are the current assets in use – value, age and life expectancy.
• Driven by future demand estimates constrained by estimated water resource availability.
A contingent view for identifying political and transaction cost adoption tension

- Asset Age
- Asset Remaining Useful Life
- Operations & Maintenance Costs
- Current & Future Expected Service Demand
- User Pricing Sensitivity

Pay for Use Choice Sensitivity
## Findings

### Table 2: Pricing Policy Choice Determinants for the Qld Urban Water Industry – Full Model

\[ Y_{ppc} = A + \beta_1 \text{POPCON} + \beta_2 \text{TYRDST} + \beta_3 \text{ELECTM} + \beta_4 \text{OAMPPS} + \beta_5 \text{CAPEXR} + \beta_6 \text{ARREAREV} + \beta_7 \text{ANGRO} + \varepsilon \]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Dir (+/-)</th>
<th>Result (1)</th>
<th>Result (2)</th>
<th>Result (3)</th>
<th>Result (4)</th>
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<tbody>
<tr>
<td>Intercept</td>
<td></td>
<td>.961 (.381)</td>
<td>.541 (.571)</td>
<td>1.189 (.162)</td>
<td>1.146 (.156)</td>
</tr>
<tr>
<td>Political visibility (POPCON)</td>
<td>-</td>
<td>-129.107 (.162)</td>
<td>1.955 (.171)</td>
<td>111.903 (.173)</td>
<td>112.930 (.174)</td>
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<tr>
<td>Current asset age (OAMPPS)</td>
<td>-</td>
<td>-.002 (.061)</td>
<td>3.497 (.052)</td>
<td>5.030 (.025)</td>
<td>5.040 (.025)</td>
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<tr>
<td>Current asset investment (CAPEXR)</td>
<td>+</td>
<td>.372 (.222)</td>
<td>1.490 (.235)</td>
<td>1.233 (.267)</td>
<td>1.219 (.270)</td>
</tr>
<tr>
<td>Capacity to pay (ARREAREV)</td>
<td>-</td>
<td>-.006 (.876)</td>
<td>.024 (.869)</td>
<td>.007 (.869)</td>
<td>.027 (.869)</td>
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<tr>
<td>Growth trend (ANGRO) +</td>
<td></td>
<td>5.227 (.025)</td>
<td>5.055 (.028)</td>
<td>5.169 (.026)</td>
<td>5.181 (.026)</td>
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<tr>
<td>Negative growth (ANGRO (1))</td>
<td>-</td>
<td>-1.178* (.025)</td>
<td>5.001 (.028)</td>
<td>4.828 (.026)</td>
<td>4.944 (.026)</td>
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<tr>
<td>Positive growth (ANGRO (2))</td>
<td>+</td>
<td>.364 (.804)</td>
<td>.062 (.849)</td>
<td>.241 (.863)</td>
<td>.269 (.846)</td>
</tr>
<tr>
<td>Tyranny of distance (TYRDST)</td>
<td>+</td>
<td>1.135 (.582)</td>
<td>1.490 (.542)</td>
<td>1.441 (.542)</td>
<td>1.441 (.542)</td>
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<tr>
<td>Region 1 (TYRDST(1))</td>
<td>-</td>
<td>.526 (.526)</td>
<td>.303 (.526)</td>
<td>.572 (.542)</td>
<td>.372 (.542)</td>
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<tr>
<td>Region 2 (TYRDST(2))</td>
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<td>.599 (.526)</td>
<td>1.089 (.542)</td>
<td>.651 (.542)</td>
<td>1.441 (.542)</td>
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<td>Electoral marginality (ELECTM)</td>
<td>Safe (ELECTM(1))</td>
<td>-.513 (.462)</td>
<td>.540 (.462)</td>
<td>.540 (.462)</td>
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<td>Very marginal (ELECTM(3))</td>
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<td>-</td>
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<td>-</td>
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<td>Nagelkerke R²</td>
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<td>29.2%</td>
<td>28.2%</td>
<td>26.4%</td>
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<td>Log likelihood</td>
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<td>99.294</td>
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<td>No Change % Classified Correct</td>
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<td>89.1%</td>
<td>83.6%</td>
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<tr>
<td>Adopt user pays % Classified Correct</td>
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<td>68.6%</td>
<td>65.7%</td>
<td>57.1%</td>
<td>60.0%</td>
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<tr>
<td>Overall % Classified Correctly</td>
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<td>81.1%</td>
<td>76.7%</td>
<td>74.4%</td>
<td>75.6%</td>
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</table>
Some areas of further tension

• Potentially requires management to disclose performance information about management of resources and assets.

• Passes asset renewal, replacement and augmentation costs directly onto users – potential for economic wealth transfer and price increases.

• Asset measurement choices, real rate of return considerations and potential for impairment of performance measurement and price increase.

• Higher household numbers use higher amount of services resulting in higher bills that are more sensitive in lower socio economic areas.

• Potential for inequitable treatment of those councils having older infrastructure assets and declining revenue bases.
Some issues worthy of consideration

- Paying for supply versus paying for water.
- Potential for inequitable pricing outcomes:

- The issue of economic wealth transfers and a staged removal of grant and soft loan funding?
Some issues worthy of consideration (Cont’d.)

• Pricing model measurement implications:
  – Implications for using Current Cost or Current Cost derivatives:
    • Real rate of return and monopoly rents;
    • Distortion of the relationship between asset values and operating and maintenance costs due asset age;
  
• Should revenues derived for the purpose of future asset renewal, replacement and/or augmentation be separately recognised?

• Treasury management of these funds including debt to equity considerations and a potential role for CCA.

• User pays – a double edged sword?
Will present water management practices satisfy the future thirst for water?