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**Renovate for Profit**

**An Exploratory Residential Case Study in New Zealand**

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**Abstract**

Improvements can be made to residential properties prior to sale with homeowner investment through the use of do it yourself activity (DIY) and direct financial expenditure. This paper uses both qualitative and quantitative data to explore improvement activity in the lower half of the North Island of New Zealand. Survey instruments, property databases and independent registered valuations were used to gather information for the residential properties included in this study.

Existing literature indicates that major improvements are recorded through residential permit activity. Dwelling alteration and addition permit activity in New Zealand has increased on average by 11% per annum between 2000 and 2005 (N.Z. Statistics, 2008). Minor improvements include repairs and maintenance to existing housing stock. Expenditure on minor improvements are not available through statistics.

## **1. Introduction**

The primary purpose of this study is to investigate the benefits of spending time and money improving a residential property prior to placing on the market for sale. This is an empirical exploratory case study collecting survey data from nine homeowners within the Horowhenua, Manawatu and Palmerston North City regions of New Zealand.

The rate of property ownership in New Zealand was 66.9% in 2006 (N.Z Statistics, 2006). With 1,478,709 owner occupied dwellings and a median price of \$310,000 (N.Z Statistics, 2006) for residential property, the financial contribution of maintaining and upgrading existing housing stock levels can contribute towards Gross Domestic Product.

An advantage of renovating a home is that the value often increases so the costs of renovation are recovered if the property is sold (Seek, 1983). For residential home owners whose intention it is to reside in their home prior to sale no capital gains tax is payable in New Zealand, so improvements above cost will not be taxed.

Housing studies have been conducted with the collection of detailed census data in America using the American Housing Survey (AHS) and in Australia with the Australian Bureau of Statistics (ABS). Another housing study included the Scottish House condition Survey in 1991. Though census data is available in these Countries few researchers have studied renovation specifically (Bogdon, 1996). Researchers in Australia have applied a combination of both census data and a survey instrument (Baum & Hassan, 1999; Seek, 1983) to study renovation or remodeling activity.

Studies specific to renovation activity requires a survey instrument in order to collect sufficient data for analysis. After initial investigations into existing literature, the best method to collect minor improvement data and homeowner data is to use a case study approach.

From an industry perspective, the United States sets a precedent for researching the remodeling of residential property. The Joint Centre of Housing Studies at Harvard

University (JCHS, 2007) and Hanley Wood (2007) both provide comprehensive market evidence and research. In New Zealand, and other countries outside of the United States there has been little empirical academic work to directly assess the viability of renovation prior to sale, primarily due to the lack of data.

This case study investigated nine homeowners who had made a premeditated decision to renovate their home during 2004 and then sell. Data was collected from survey participants, property databases and independent registered valuations.

## 2. Literature

Within the sector of residential homeownership, some homeowners will choose to improve their property through renovation or remodeling activity. The improvement may involve a minor financial expenditure defined by Potepan (1989) as offsetting physical depreciation. The improvement may also involve a major financial expenditure with a definition abridged from Seek (1983) and Montgomery (1992) as an addition, alteration or renovation to the existing depreciating stock or other structures on property.

Do it yourself (DIY) or 'sweat' equity has been recognized in academic literature as a contribution towards financial expenditure (Bogdon, 1996; Littlewood & Munro, 1996; Peek & Wilcox, 1991). In Peek et al's (1991) study, DIY activity was included as a dollar term based on an equivalent value of materials. The inclusion of DIY activity in this study increased annual growth in real house prices from .66% to .89% per annum (Peek et al., 1991). Helbers & McDowell cited in (Boehm & Ihlanfeldt, 1986) used minimum wage to represent DIY activity. Using minimum wage was criticised in (Boehm et al., 1986) as being a crude method, but no suggested alternative was made. DIY activity remains difficult to obtain and is rarely captured in academic studies (Seek, 1983; Shear, 1983).

Market value of a property prior to improvement has been conducted through the use of homeowner estimates (Kiel & Zabel, 1999); modelling (Williams, 1997); investment - option pricing (Capozza & Yuming, 1994); indexing (Davis & Heathcote, 2007); statistical regression (Peek et al., 1991); and via an independent valuation (Robins & West, 1977). Accurate market value prior to improvements sets a benchmark for renovation activity. Accuracy is improved through impartiality and knowledge of the property and the market. A study conducted in America by Robins & West (1977) used a stochastic model to assume measurement errors for three methods of value, appraised value, homeowners opinion of value and assessed value. Appraised data was used as the base 'true market value'. While acknowledging errors exist in this value, no remedy had been applied in this model. The sample size included 138 properties. Results indicated

that while the appraiser and the homeowner determine the value of their home with about the same degree of accuracy, the homeowner tends to overvalue their home. Results also indicate that while the appraised value was used as the base, the assessed value is a better measure by the mean square error criterion. While registered valuations provide an independent assessment of value, a margin of error is still attached to this value. A legal precedent ("Singer & Friedlander Ltd v John D Wood & Co," 1981) stipulates that a professional using a necessary skill set is required to provide a duty of care to their client. In this case a permissible margin of error is said to be generally 10% either side of a value, with a larger margin of error in extenuating circumstances.

Industry based research relating to remodeling is conducted by Hanley Wood (2007) Online. In terms of value, Hanley Wood uses the actual cost of remodeling which is forwarded to the National Association of Realtors (NAR) by a survey to determine anticipated resale value. Appraisers do not visit the property.

A limiting factor in researching renovation for a profit relates to gathering data (Baker & Kaul, 2002; Baum et al., 1999; Boehm et al., 1986; Littlewood & Munro, 1997; Phipps, 1983; Shear, 1983). Surveys are required to collect sufficient data for renovation activity. A study in Adelaide using both survey and census data reported almost all of the respondents who had increased the floor area of the house believed that their dwelling had increased in value after making improvements (Seek, 1983), though it is not specified whether the perceived increased value exceeded the cost of construction.

Minor improvements completed to residential property are likely to prevent depreciation of the physical structure. Research by (Knight., Miceli, & Sirmans, 2000; Knight & Sirmans, 1996; Phipps, 1983; Ziegert, 1988) all indicate that when older homes are renovated, the quality of the home is raised to a modern equivalent. Renovation may add extra value, but also brings the home to normal maintenance levels and value similar to other houses on the market.

The strength of existing literature in relation to renovation activity research lies in countries where a vast amount of information is collected via census or industry research. Without a rich source of information, a survey is required to record current housing stock quality, financial expenditure by the homeowner and demographic data.

Bogdon's (1996) research indicates an opportunity cost of do it yourself activity more accurately captures the total expenditure of improvement activity, rather than the financial cost of improvements alone.

Assessing market value before improvements can be conducted with the aid of a registered valuation, the home owner's assessment of value or other statistical technique. Sale price sets the market value on sale.

### **3. Methodology**

There were nine properties which met the criteria that the homeowner must have made a pre-meditated decision to renovate for profit prior to sale. Renovation work occurred during the period 2003-2004 in a provincial region of the lower North Island in New Zealand. To attract participants, notices were placed in local newspapers by advertisement, letters to the editor, word of mouth, contact with real estate agents, poster displays and leaflets in paint and wall paper retail outlets. The most successful method to attract participants was word of mouth.

A variety of data collection techniques were employed throughout this study. A survey instrument was used to collect both qualitative and quantitative data. Existing property databases provided quantitative details about each property. Registered valuation reports also provided quantitative and qualitative data. A benefit of using survey data is to check if results conform to existing literature.

Quantitative data required for comparison to existing literature included facts about dwelling itself, obtained from both Quotable Value and Real Estate Institute of New Zealand (REINZ). Finally, an estimate as to market value prior to improvements was obtained from rating valuations, Quotable Value (e-valuer), and an independent registered valuation. The registered valuation provides an independent assessment of value. E-valuer and rating values rely on hedonic pricing methods.

While registered valuations are costly, all homeowners were entitled to receive a copy as an incentive for participating in the study. An inspection of every property included for analysis was conducted by the researcher and registered valuer. Independent registered valuers were arbitrarily selected from the local area by the researcher to complete one inspection of a property. The valuers contacted the homeowners directly to arrange access. While the intention was to have the inspection completed prior to improvements, this was not always possible as some properties were in advanced or finished stages of improvement. The valuer was given either verbal or written instructions as to the original

condition of the property (visit 1), and the condition of the property once improvements were complete (visit 2). Two figures were provided (visit 1) before improvements, and (visit 2) after improvements. As a registered valuation is an independent assessment of market value, this valuation figure was adopted for the visit 1 value. The sale price is also an assessment of market value, being exposed to the market and this figure was adopted for visit 2.

Value estimates provided by rating values and e-values were then compared to the valuer's assessment of market value (value 1). The homeowner's assessment of sale price was compared to the actual sale price. The variation between these assessments will be checked for conformity to existing academic studies.

Pivot tables in Excel have been applied for counts, means, sums and other quantitative analysis.

Two structured questionnaires were used. Visit 1 collected data related to the intentions and perceptions of the homeowner prior to improvements. The visit 1 survey also collected demographic data related to the homeowner. Visit 2 collected actual DIY activity and financial expenditure. The homeowner advised the researcher of the contract sale price following sale, which was verified via New Zealand property database records.

#### 4. Case Study Findings

##### *Profit*

The nine houses in this case study all completed minor improvements. Not one of the nine houses completed a major improvement. The original survey document listed 23 sectors within the home. Results have been summarized into nine sectors outlined in table 1 and table 3.

**Table 1: Total Expenditure Matrix**

	House No. 1	House No. 2	House No. 3	House No. 4	House No. 5	House No. 6	House No. 7	House No. 8	House No. 9
Registered Valuation at Visit 1	\$95,000	\$170,000	\$114,000	\$218,000	\$440,000	\$284,500	\$155,000	\$189,000	\$250,000
Kitchen	\$0	\$1,324	\$0	\$214	\$365	\$458	\$452	\$0	\$620
Bathroom and Toilet	\$630	\$1,354	\$951	\$0	\$112	\$472	\$0	\$0	\$0
Bedrooms	\$425	\$620	\$1,020	\$0	\$1,220	\$0	\$904	\$0	\$0
Living/Family/Hall/Entrance	\$1,107	\$372	\$38	\$1,140	\$0	\$964	\$1,130	\$0	\$0
Plumbing/Heating/Electrical	\$2,318	\$1,210	\$0	\$60	\$115	\$120	\$0	\$0	\$0
Exterior Dwelling	\$1,440	\$0	\$0	\$132	\$7,762	\$612	\$2,056	\$0	\$860
Garage/Shed	\$160	\$0	\$0	\$436	\$981	\$119	\$0	\$1,824	\$218
Other Improvements on site	\$701	\$54	\$652	\$606	\$760	\$434	\$3,468	\$598	\$890
Other Expenses	\$118	\$198	\$0	\$160	\$3,354	\$555	\$0	\$0	\$0
<b>TOTAL</b>	<b>\$6,899</b>	<b>\$5,132</b>	<b>\$2,661</b>	<b>\$2,748</b>	<b>\$14,669</b>	<b>\$3,734</b>	<b>\$8,010</b>	<b>\$2,422</b>	<b>\$2,588</b>
Profit margin after sale	\$14,101	\$5,868	\$7,339	\$1,252	\$45,331	\$11,266	\$1,490	\$7,578	\$15,912
Sale price	\$116,000	\$180,000	\$124,000	\$220,000	\$500,000	\$285,000	\$164,500	\$199,000	\$268,500
Market adjusted Registered Valuation	\$108,205	\$170,000	\$114,000	\$220,275	\$450,120	\$292,362	\$155,000	\$189,000	\$253,125
<b>Percentage Profit</b>	<b>1%</b>	<b>3%</b>	<b>6%</b>	<b>-1%</b>	<b>8%</b>	<b>-4%</b>	<b>1%</b>	<b>4%</b>	<b>5%</b>

The registered valuation at visit 1 in Table 1 sets the benchmark for the analysis of profit. This value has been determined independently and meets the International Valuation Association Standards (PINZ, 2006) definition of market value. Quotable Value price indexes have been applied to the registered valuation to reflect average movements of sale price related to the rating valuation of the properties concerned, to assist comparisons over time (Quotable Value, 2004). The market adjusted registered valuation as at the time of sale is shown in Table 1.

Total expenses included in Table 1 sums actual financial expenditure and DIY activity expressed as an opportunity cost (@ \$14.00/hour) for each property. Average financial

expenditure equals \$5,000 per house (including the opportunity cost of DIY time). This expenditure may represent a catch-up of deferred maintenance advocated by (Knight et al., 2000; Knight et al., 1996). However, \$5,000 still represents a considerable investment, not only in the house itself, but also as a contribution to Gross Domestic Product.

Every property made a profit prior to a market adjustment. However, applying the Quotable Value index reduces profitability as house prices were increasing during this period. Market adjusted net profit as a percentage of sale prices are displayed in Table 2.

<b>House</b>	<b>1</b>	<b>1%</b>
	<b>2</b>	<b>3%</b>
	<b>3</b>	<b>6%</b>
	<b>4</b>	<b>-1%</b>
	<b>5</b>	<b>8%</b>
	<b>6</b>	<b>-4%</b>
	<b>7</b>	<b>1%</b>
	<b>8</b>	<b>4%</b>
	<b>9</b>	<b>5%</b>

**Table 2: Market Adjusted Net Profit**

Not all houses in the study made a profit (Table 2). The houses that did not make a profit had extenuating circumstances. House 6 had two dwellings on the site which made it difficult to sell. House 4 was a private sale, therefore did not incur the same degree of moving costs as other houses in this study. Savings of real estate commission's payable on House 4 may effectively result in a positive 2% profit.

The Joint Centre of Housing Studies in America reported that homeowners recover as much as 80% of their improvement cost (excluding DIY time) through higher values following remodeling activity (JCHS, 2001). Many of the JCHS activities are major renovations incorporating professional building, electrical and plumbing labour expenses.

*Analysis by Sector*

The original 23 sectors within the property were summarized into nine sectors for reporting which include:

**Table 3: Sectors of Property**

- Kitchen
- Bathroom and Toilet
- Bedrooms
- Living/Family/Hall/Entrance
- Plumbing/Heating/Electrical
- Exterior Dwelling
- Garage/Shed
- Other Improvements on site
- Other Expenses

The only sector in Table 1 and in Table 3 in which every household spent either time or money relates to other improvements on the site. On further analysis, all nine homeowners spent time or money on landscaping. The next two most popular sectors for improvement include the kitchen and the exterior of the dwelling where six out of nine spent time or money.

The expense questions in the survey were very detailed. In addition to the sectors listed above, respondents were also asked to categorise the financial expenditure by decoration, fittings or chattels. Space was left for the respondent to place a description if required, such as painting or wallpapering. Table 4 outlines financial expenditure by chattels, decoration and fittings.

**Table 4: Financial expenditure as a proportion of Chattels, Decoration and Fittings**

House No	1	2	3	4	5	6	7	8	9	Total	Mean
<b>Chattels</b>	0.0%	5.0%	0.0%	0.0%	7.0%	54.5%	0.0%	0.0%	0.0%	8.0%	\$134
<b>Decoration</b>	24%	20%	49%	51%	80%	37%	100%	100%	96%	46%	\$771
<b>Fittings</b>	76%	75%	51%	49%	13%	8%	0%	0%	4%	46%	\$778
Average expenditure per dwelling											\$1,684

The financial expenditure for decoration and fittings in Table 4 contributed 46% each to the financial cost of improvements. Two houses in the study spent more than \$2,500 installing heating equipment prior to sale which contributes to the high percentage of fittings in Table 4 for house numbers 1 and 2. The mean financial expenditure was \$1,684 relating to chattels, decoration or fittings.

The only sector in Table 4 in which all households contributed financial expenditure was decoration. Upon further analysis, every household completed a painting activity either to the interior or exterior of the property.

### *Value*

Initial market value at visit 1 sets the benchmark to determine if any profit has been made following renovation. Value estimates were available only from rating values, as Quotable Value's E-valuer was available in only 2/3<sup>rd</sup>s of the properties. The rating valuations were market adjusted by Quotable Value's index (Quotable Value, 2004). Rating valuations varied markedly ranging between -23% to +14% from the registered valuation at visit 1.

The visit 2 registered valuation (after improvements) were between -5% to +8% of the final sale price. Homeowners assessment of sale price were between -7% and +5% of final sale price. Results indicate that while Robins et al (1977) research is not recent, evidence suggests homeowners assessment of sale price is just as accurate as registered valuations. Homeowners tend to over estimate value according to existing literature (Kiel et al., 1999).

## 5. Discussion and Conclusion

Homeowners represent 67% of all residential housing in New Zealand (N.Z Statistics, 2006). There were 1.5 million owner occupied dwellings (N.Z Statistics, 2006) with a mean value of NZ\$310,000 during the 2006 calendar year (REINZ, 2004).

Independent registered valuations, while an expensive option, provide accurate levels of market value. Other property data such as rating valuations and e-valuer reports employ hedonic methods for determining value. While homeowner estimates of value may have been employed for initial value, this was seen as being too subjective, and a registered valuation provided an objective assessment of value.

There is some merit in empirical research that examines time and expenditure spent on residential property and any likelihood of increased value. The findings of this study, combined with existing literature, could provide both home owners and investors with sound evidence to support improving urban housing prior to placing on the market for sale.

Evidence suggests an average property situated in a good location (Boehm et al., 1986; Littlewood et al., 1996) is likely to sell for a profit providing first impressions are positive. Overall results indicate that spending time and money on minor improvements prior to sale increases the quality of existing housing stock to normally maintained levels (Littlewood et al., 1996).

As all of the properties in this study conducted minor improvements only, do-it-yourself time is an important element to be captured. Peek's (1991) study indicated that annual growth in real house prices resulted in a .23% change per annum in comparison to financial expenses only. Financial expenditure in this case study is low which conforms with existing literature (Phipps, 1983) where financial expenditure was less than \$500.

Landscaping and painting are the sectors which have been conducted by all houses in this case study. While it appears landscaping and painting the exterior of the property increased profitability for seven of the nine houses, results are inconclusive. A large multi-national record of improvements similar to the Joint Centre of Housing Studies would verify the sectors which would increase value and percentage recovery of total cost price.

Areas for further research include a comparison with properties which have not been improved and sold in similar time frames to ensure a premium is in fact being paid for well maintained, tidily presented residential property.

## **6. Limitations**

A variety of limitations are associated with this research including the small sample size and concentration of data in one region. Results may be indicative of regional performance, rather than large city or national performance. Variance in market factors have been considered by applying the quotable value index to adjust for market movement over time. Applying data from a control group would verify the profit did not result solely in market movement.

## References

- Baker, K., & Kaul, B. (2002). Using multiperiod variables in the analysis of home improvement decisions by homeowners. *Real Estate Economics*, 30(4), 551-566.
- Baum, S., & Hassan, R. (1999). Home owners, home renovation and residential mobility. *Journal of Sociology*, 35(1), 23-41.
- Boehm, T. P., & Ihlanfeldt, K. R. (1986). The improvement expenditures of urban homeowners - an empirical-analysis. *Journal of the American Real Estate & Urban Economics Association*, 14(1), 48-60.
- Bogdon, A. S. (1996). Homeowner renovation and repair: The decision to hire someone else to do the project. *Journal of Housing Economics*, 5(4), 323-350.
- Capozza, D., & Yuming, L. (1994). The intensity of timing of investment: the case of land. *American Economic Review*, 84(4), 889-904.
- Davis, M. A., & Heathcote, J. (2007). The price and quantity of residential land in the United States. *Journal of Monetary Economics*, 54(8), 2595-2620.
- Hanley Wood. (2007). *Hanley Wood* Retrieved 15 January 2008, from [www.hanleywood.com](http://www.hanleywood.com)
- JCHS. (2001). *Measuring the benefits of remodeling*. Cambridge: Harvard University.
- JCHS. (2007). *Foundations for future growth in the remodelling industry*. Cambridge: Harvard University.
- Kiel, K., & Zabel, J. (1999). The accuracy of owner-provided house values: The 1978-1991 American Housing Survey. *Real Estate Economics*, 27(2), 263-298.
- Knight, J., Miceli, T., & Sirmans, C. (2000). Repair expenses, selling contracts and house prices. *Journal of Real Estate Research*, 20(3), 323.
- Knight, J., & Sirmans, C. (1996). Depreciation, maintenance, and housing prices. *Journal of Housing Economics*, 5(4), 369-389.
- Littlewood, A., & Munro, M. (1996). Explaining disrepair: Examining owner occupiers' repair and maintenance behaviour. *Housing Studies*, 11(4), 503-525.
- Littlewood, A., & Munro, M. (1997). Moving and improving: Strategies for attaining housing equilibrium. *Urban Studies*, 34(11), 1771-1787.
- Montgomery, C. (1992). Explaining home improvement in the context of household investment in residential housing. *Journal of Urban Economics*, 32(3), 326-350.
- Peek, J., & Wilcox, J. A. (1991). The measurement and determinants of single-family house prices. *Journal of the American Real Estate & Urban Economics Association*, 19(3), 353-382.
- Phipps, A. G. (1983). Housing renovation by recent movers into the core neighborhoods of saskatoon. *Canadian Geographer*, 27(3), 240-262.
- PINZ. (2006). *Property Institute of New Zealand Professional Practice Manual* (Fifth ed.). Wellington, New Zealand: Property Institute of New Zealand.
- Potepan, M. J. (1989). Interest-rates, income, and home improvement decisions. *Journal of Urban Economics*, 25(3), 282-294.
- Quotable Value. (2004). *Urban Property Sales Statistics*. Wellington: Quotable Value.
- REINZ. (2004). Residential Median Results. Retrieved June, 2007, from [www.reinz.co.nz/stats](http://www.reinz.co.nz/stats)
- Robins, P. K., & West, R. W. (1977). Measurement errors in the estimation of home value (Vol. 72, pp. 290-294): American Statistical Association.

- Seek, N. H. (1983). Adjusting housing consumption - improve or move. *Urban Studies*, 20(4), 455-469.
- Shear, W. B. (1983). Urban housing-rehabilitation and move decisions. *Southern Economic Journal*, 49(4), 1030-1052.
- Singer & Friedlander Ltd v John D Wood & Co. (1981). *The Valuer*, 26(400).
- Statistics, N. Z. (2006). *2006 Census*. Retrieved 26 October 2008. from <http://www.stats.govt.nz/>.
- Statistics, N. Z. (2008). Building consents issued and quarterly building activity survey. *Statistics, NZ* Retrieved 25 January 2008, 2008, from [www.stats.govt.nz/analytical-reports/business-activity-2000](http://www.stats.govt.nz/analytical-reports/business-activity-2000)
- Williams, J. (1997). Redevelopment of real assets. *Real Estate Economics*, 25(3), 387.
- Ziegert, A. L. (1988). The demand for housing additions: An empirical analysis. *Journal of the American Real Estate & Urban Economics Association*, 16(4), 479-492.