

The Effects of Pipelines on Agricultural Land Values

by Darrell M. Toma

All results indicate that pipelines do not affect property values in low versus high market demand.

Darrell Toma is a consultant for Deloitte Haskins+Sells Associates located in Edmonton, Alberta. The article is based on a study made by the firm in 1982. The findings were also made public in Reno, Nevada during IRWA's 28th International Educational Seminar.

Pipeline trenching activities accelerated rapidly in Alberta during the mid to late 1970's because of rapidly rising petroleum prices. One consequence of this increase in activity was more contracting with farmers and landowners to acquire surface rights for drilling. In the period 1973-1981 the number of permits to construct pipelines in Alberta increased by 1452 or 126%. Well site drilling activities were spread throughout the province because oil and gas fields are dispersed; however, on an area basis gas fields account for about 80% of the total gas and oil acreage in Alberta.

A concern that has arisen is the effects of a pipeline or pipelines on agricultural land values. Farmers and landowners believe that installing a pipeline onto their land will cause adjacent acreage to become devalued in price. Under the Alberta Surface Rights Act Section 23-ii(e) an award could be made for a devaluation if it were proven. The main objective of the study was to quantify any effects of pipelines on land values.

Data and Methodology

Previous studies into the effects of pipelines on farm land values are scarce. Studies by Deloitte Haskins & Sells Associates (1980, 1979),

Anger (1972) and Doane (1969) all indicated no negative effects on agricultural land values. Research studies into the effects of powerlines on agricultural land values were also reviewed. Woods Gordon (1981), Brown (1975), and Realty Research (1974) all concluded that no effects were evident on agricultural land values. A study by the Ontario Royal Commission on Electric Power Planning (1978) concluded that a 16 - 29% decrease was due to powerlines; however, the study has shortcomings in both methodology and data which infer suspect conclusions.

The data used in this study included arms-length Alberta sales in the period 1976-1981. Variables identified for each sale were: legal description, date of sale, total price, total acreage, cultivated acreage, building values, bareland price per acre, Canada Land Inventory Soil Class (C.L.I.), presence of a pipeline, wellsite, railway or powerline and types, size and commodity carried in a pipeline. Sales with grazing leases attached, natural gas service lines, and listings and properties less than 120 acres in size were excluded from the analysis. In total 4611 land sales were used.

Alberta was divided into eight regions to help control for the influ-

ence of location on parcel selling price. Parcels were grouped into two size categories for testing quarter sections (120 - 170 acres) and parcels larger than 170 acres. Sales were controlled for soil class, and building values were adjusted to allow for each parcel to be tested on a bareland acre basis. A Student's t-test was used as the statistical criteria to measure any differences in the bareland price per acre (a difference of mean's test).

Two approaches were used in this study. The first compared bareland agricultural sales to bareland agricultural sales with a pipeline for differences in bareland price per acre. A comparison was made within each of the eight defined regions.

The second approach involved appraisal techniques of comparing pairs of subjects parcels (sales with pipelines) to comparable parcels (bareland sales) for any differences in per acre values. Again, a Student's t-test was used to test for statistical differences.

Results

Using the first approach to analyze the data allowed a total of 18 analyses for six regions. In 14 cases the price of land with a pipeline was higher than land without a pipeline by \$103 per acre on average. The re-

maining four analyses had a lower average price per acre for land with pipelines by \$73 per acre. One factor thought to affect this difference was the percent of cultivated land; in a majority of the cases, land with pipelines had more cultivated acreage. Adjustments were therefore made for cultivated acreage and after these adjustments, 21 of 32 analyses indicated that land with pipelines had a higher per acre value by \$84 per acre on average. (More analyses were permitted because sales with buildings were included.) In the other 11 cases, parcels with pipelines had a lower value by an average of \$80 per acre. However, none of these 11 analyses were found to be statistically significant at the 90% confidence level.

An analyses was made of sales with three or more pipelines compared to bareland sales to determine if more than three pipelines would adversely affect values. In three of four analyses, parcels with the three or more pipelines had a higher average value per acre. The one remaining analysis had a lower average value per acre, but was not statistically significant.

Analyses were made of sales in low versus high periods of demand for farmland to test for effects when demand for land is strong or weak. Sales were appreciated to 1977, 1979 and 1981 dollars. In total 18 analyses were made for these three years with 1977 being a low year for demand and 1981 being a year of high demand. All results indicate that pipelines do not affect property values in low versus high market demand.

To help confirm results of the first approach, testing of paired sales was made by region. A total of 43 pairs of sales (using a subject and a comparable) were identified, appraised and analyzed for per acre price differences. Sales were paired if the comparable satisfied this criteria: Sale date \pm 1 year of subject, location \pm 10 kms, soil rating was \pm 1 class, located in similar proximity to urban centers and had similar irrigation characteristics. Based on this second approach and statistical test-

ing, no effects on land values were noted.

Summary and Conclusions

This study attempted to measure the effects of pipelines on agricultural land values in Alberta. A large data base of arms-length sales (4611) for the period 1976-1981 were used in two different approaches to estimate any effects. The approaches included a difference of means test, and a more detailed paired comparison method.

Results of both approaches indicate that pipelines do not affect the value of agricultural land. Whether a parcel has one or more pipelines does not alter this conclusion. The same conclusion holds true during periods of high or low demand for agricultural land. These results are consistent with other known studies and reflect a conclusion that buyers do not discriminate, purposely or knowingly, against land with pipelines.

References

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