

Appendix 1

Where Does Wyoming
Work?

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Industry	Company Name	Wyoming Locations
Mining	Amoco Production Company	Statewide
Mining	Amax Coal West Inc.	Gillette
Manufacturing	F M C Corporation	Green River, Kemmerer
Service	Grand Teton Lodge Co.	Moran
Retail Trade	Hamilton Stores Inc.	Yellowstone
Mining	Kerr Mcgee Coal Corp.	Gillette
Retail Trade	Mini Mart Inc.	Statewide
Mining	Pacific Minerals Inc. Rock Springs	Rock Springs
TCPU	PacifiCorp	Statewide
Mining	Powder River Coal Co.	Gillette, Wright
Fire	Safecard Services	Cheyenne
Retail Trade	Safeway Stores 44 Inc.	Statewide
Manufacturing	Sinclair Oil Corporation	Statewide
Mining	Solvay Minerals Inc.	Green River
Retail Trade	Sugarland Enterprises	Sheridan, Casper, Cheyenne
Mining	Thunder Basin Coal Co.	Wright
TCPU	United Parcel Service Inc.	Statewide
Retail Trade	Wal Mart Associates Inc.	Statewide
Service	Wyoming Medical Center Inc.	Casper

Source (Wyoming Department of Employment, "Wyoming's Largest Employers, June 1997")

Appendix 2

Description of Minimum and Maximum Values of Variables (Extension of Figure 10)

Several of the minimum numbers may look a bit disconcerting. The minimum annual average earnings was \$7,849 for men and \$5,579 for women, numbers well below minimum wage. This represents one census block, in which the percent of men working full time was 14% (11% for women). Given its location this block appears to be heavily populated by UW students. For those working full time the number is considerably higher.

Descriptive Statistics	Mean	Minimum	Maximum
Avg Household Inc	\$ 44,240	\$ 16,640	\$ 78,530
Avg \$(k) Fulltime employed men & women combined	\$ 33.647	\$ 18.633	\$ 48.859
Avg Age (of those between 16 - 69)	40.15	22.53	45.29
Percent with Children 18 or under	28.30%	10.40%	32.68%
ALL Occupational Index	26.73	7.62	51.73
Industry Index ALL	29.15	19.46	38.09
Median Earnings Male	\$ 27,285	\$ 5,613	\$ 47,446
average male earnings	\$ 32,175	\$ 7,848	\$ 50,513
Avg \$(k) Fulltime employed men	\$ 38,445	\$ 18,630	\$ 59,180
Avg Age of Men (between 16 -69)	40.15	22.82	44.97
Avg Yrs of School Men	14.31	12.00	16.55
% men working full time (35+hrs/wk >40wks)	72.39%	14.30%	89.28%
% men working 15-34hr/wks >40wks	4.98%	0.00%	24.12%
% men unemployed/men in labor force	5.58%	0.00%	28.04%
Median Earnings Female	\$ 13,272	\$ 4,145	\$ 21,645
average female earnings	\$ 16,933	\$ 5,578	\$ 25,279
Avg \$(k) Fulltime employed women	\$ 23,500	\$ 14,210	\$ 38,040
Avg Age of Women (between 16 -69)	40.18	22.25	45.63
Avg Yrs of School Women	13.23	11.63	15.26
% women working full time (35+hrs/wk >40wks)	52.45%	11.40%	70.73%
% women working 15-34hr/wks >40wks	14.17%	6.63%	31.25%
% women unemployed/men in labor force	4.99%	0.00%	14.78%
total number employed in county	1913	28	4912

Appendix 3

Regression Analysis of Income

The number we will focus on primarily will be the average earnings for full time workers. While this will not consider the pay received for part time work, which is a disproportionate part of working women's experience, it provides a comparable point of comparison. Viewed in these terms women make 60% of what men do.

While the rationale for using the measures is quite different, the measures are closely associated. As is illustrated in the table below when the average household income, median household earning and average earning for men and women combined are correlated, the relationship is substantial. This suggests that the results would be highly similar regardless of which measure was used.

		Avg Household Inc (k)	Median Earnings in 1999 (Dollars)	Avg \$(k) FT employed M&F
Avg Household Inc (k)	Correlation	1.00		
	Sig. (2-tailed)	.		
Median Earnings in 1999 (Dollars) by Sex for the Population 16 Years and Over with Earnings Total	Pearson Correlation	0.81	1.00	
	Sig. (2-tailed)	0.000	.	
Avg \$(k) FT employed M&F	Correlation	0.88	0.77	1.00
	Sig. (2-tailed)	0.000	0.000	.

Industry and occupation are generally presumed to be associated with different levels of income. However, this relationship can be examined specifically. Below is a regression based on the percent of people working in each occupation with household income as the dependent variable. The occupations are organized in terms of the unstandardized beta coefficient's value. The unstandardized beta might be interpreted as the number of dollar increase in average household income that is associated with a 1% increase in the percent of people working in the occupation. So, for each percent increase in the proportion of the employed population that works in the arts, the average household income declines by \$305. There are three caveats. First, the variability in the percentages across census blocks will differ for each occupation. This affects the confidence that one may have in the estimated effect. The likelihood the result occurred by chance is reported in the right most column. Usually, a probability of less than 5% is used as the cut off point. So, the effect of employment in the arts has a probability that it occurred by chance of .012, so one might be confident that it is not a random event. We might be less confident of the estimated effect of increasing the percent of computer specialists. Second, an increase or decrease in household income for the block does not mean the people who are in these occupations necessarily bring home more or less money. For example teaching is generally one of the less well paid professions, yet it is associated with higher average household income. One possible explanation is that communities with higher average household income can afford proportionately more teachers. Third, there is a risk of over-prediction of the dependent variable. With so many occupations it is possible that the frequency of some of these occupations increases long with others. If one occupation tends to increase in prevalence along with another occupation, the association with household income will be split between the two, reducing the apparent effect of each. Still, what this does provide is the best estimate of household income based on participation in different occupations within an census block.

These three caveats apply to efforts to interpret the importance of each individual occupations as a determinant of income. However, if we wanted an index reflecting the overall value of the occupations in which people work, simply multiplying the percent of people in a census block working in each of the occupations by its corresponding unstandardized coefficient would provide a good estimate. This is the way the occupation index was created. It indicates the value in terms of increased or decreased household income reflected by the types of occupation occupied by people in the census block.

Regression with DV = Household Income	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	57.32	12.79		4.48	0.000
% arts/occupation	-305.46	119.27	-0.19	-2.56	0.012
% computer specialists/occupation	-176.82	139.41	-0.09	-1.27	0.208
% supervisors, transportation/occupation	-117.69	44.96	-0.22	-2.62	0.010
% firefighting/occupation	-106.82	76.86	-0.23	-1.39	0.168
% health technologists/occupation	-102.71	82.76	-0.13	-1.24	0.218
% other protective/occupation	-96.95	80.39	-0.18	-1.21	0.231
% drafters,etc/occupation	-90.38	68.11	-0.10	-1.33	0.188
% business operations specialists/occupation	-74.35	83.02	-0.08	-0.90	0.373
% motor vehicle/occupation	-58.04	60.62	-0.08	-0.96	0.341
% personal care/occupation	-53.81	40.11	-0.17	-1.34	0.183
% installation/occupation	-47.95	228.14	-0.01	-0.21	0.834
% architect/occupation	-42.56	66.63	-0.05	-0.64	0.525
% sales and related/occupation	-36.73	48.72	-0.08	-0.75	0.453
% community/occupation	-28.95	28.80	-0.09	-1.01	0.317
% health diagnosing/occupation	-21.27	67.19	-0.10	-0.32	0.752
% farm manager	-16.00	74.27	-0.02	-0.22	0.830
% extraction/occupation	-1.14	36.99	0.00	-0.03	0.975
% building and grounds/occupation	19.12	31.65	0.09	0.60	0.547
% farming fishing and forestry/occupation	19.49	31.24	0.05	0.62	0.534
% healthcare support/occupation	21.54	127.61	0.02	0.17	0.866
% aircraft/occupation	27.28	62.38	0.03	0.44	0.663
% construction trade/occupation	48.43	33.64	0.12	1.44	0.153
% food preparation/occupation	72.92	85.02	0.10	0.86	0.393
% management/occupation	76.03	92.40	0.06	0.82	0.413
% supervisors, construction/occupation	105.70	53.12	0.19	1.99	0.049
% office and administrative support/occupation	123.04	66.36	0.14	1.85	0.067
% law/occupation	136.56	86.06	0.14	1.59	0.116
% education/occupation	174.03	57.05	0.27	3.05	0.003
% life & other science/occupation	245.26	111.82	0.21	2.19	0.031
% production/occupation	321.10	314.91	0.07	1.02	0.310

For purposes of understanding difference in pay it may be more useful to look at the magnitude and direction of the effect attributable to participation in these occupations for men and women separately. Do the same occupations result in equally favorable effects on household income when it is a woman rather than a man in the occupation? At this point we will focus on the standardized coefficients because they allow a direct comparison and adjust for the size of the underlying numbers. (Standardized coefficients vary from -1 to +1 just as do correlation coefficients.)

Regression with DV = Household Income, for men & women	Men		Women	
	Standard Beta	Sig.	Standard Beta	Sig.
Management occupations not farming	0.16		0.06	
Farm managers	-0.28	0.007	0.03	
Business operations specialists	0.08		-0.07	
Computer & math. occupations	0.02		0.00	
Architects, surveyors, & engineers	0.18	0.030	0.10	
drafters, engineering & Mapping technicians	-0.13		-0.26	0.004
Life, physical & Social sci. occupations	0.00		-0.18	
Community & social service	-0.20	0.011	-0.09	
Legal occupations	0.11		0.01	
Education, training & library occupations	-0.20	0.032	0.01	
Art, entertainment & media	-0.02		0.14	
Health diagnosis & treating, practitioners & techs	0.09		0.08	
Health technologists & technicians	-0.14		-0.16	
Healthcare support services	-0.03		-0.26	0.028
Fire fighters & law enforcement	0.02		-0.22	0.011
Other protective service, includes supervisors	-0.19		0.18	0.045
Food preparation & related services	-0.33	0.000	-0.38	0.037
Building & grounds maint. & cleaning	-0.19	0.021	-0.14	
Personal care & service	0.18	0.018	-0.19	
Sales & related occupations	-0.12		-0.22	
Office & administrative support	0.01		-0.03	
Farming, fishing & forestry occupations	-0.08		-0.17	
Production occupations	-0.07		-0.29	0.006
Supervisors of transport & moving workers	-0.03		0.02	
Aircraft & air traffic control	0.16	0.044	0.04	
Motor vehicle operators	-0.19	0.036	-0.04	
Rail, water & other transportation occupations	-0.03		0.06	
Material moving workers	-0.13		-0.05	

The occupations associated with higher household income are different for men and women. Indeed, in some cases the effects appear to be opposite. Increased proportions of men working in farm management is associated with less household income, while for women there is a non-significant positive coefficient. There is a similar pattern for education, protective services other than fire fighting and policing, and (in the opposite direction) personal care. In almost every instance the significant factors for women are negative, that is household income is better the smaller the proportion of women report being in these occupations.

A similar analysis may be conducted for industry. The first table shows the relationship between the percent of employed people in the industry within a census block and household income. In interpreting this information the same caveats apply as they did with the corresponding table for occupation. (e.g., The modest negative effect from mining probably does not mean that miners

are paid lower than others but that in areas where more people are employed in mining there may be a number of [other] low paid jobs.)

Regression with DV = Household Income	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	signif.
(Constant)	71.89	12.17		5.91	0.000
% health care and social /industry	-102.20	24.27	-0.35	-4.21	0.000
% professional, scientific/industry	-99.10	52.84	-0.14	-1.88	0.063
% administrative and support/industry	-90.90	20.79	-0.38	-4.37	0.000
% public administration/industry	-76.15	21.37	-0.42	-3.56	0.001
% manufacturing/industry	-66.96	26.11	-0.23	-2.56	0.012
% management/industry	-62.75	17.15	-0.38	-3.66	0.000
% transportation/industry	-61.08	55.93	-0.08	-1.09	0.277
% accommodation and food/industry	-34.43	19.80	-0.15	-1.74	0.085
% mining/industry	-34.10	24.60	-0.11	-1.39	0.169
% arts, entertainment/industry	-33.59	40.73	-0.06	-0.82	0.411
% agriculture/industry	-27.96	25.05	-0.09	-1.12	0.267
% utilities/industry	-9.08	42.49	-0.02	-0.21	0.831
% wholesale/industry	-7.35	34.94	-0.02	-0.21	0.834
% construction/industry	21.59	46.61	0.03	0.46	0.644
% educational/industry	32.82	57.48	0.04	0.57	0.569
% retail/industry	57.73	46.89	0.10	1.23	0.221
% finance insurance/industry	70.05	48.05	0.13	1.46	0.148
% other services/industry	164.36	26.57	0.49	6.18	0.000
% information/industry	167.20	73.34	0.17	2.28	0.025
% real estate/industry	1462.65	1018.21	0.09	1.44	0.154

Of more interest are the differences in the associations of industry with household income depending on whether one looks at the proportion of men or women in the occupation.

DV = Avg. Household Income	<u>Percent Men in Industry</u>			<u>Percent Women in Industry</u>		
	Standardized b	t	Sig.	Standardized b	t	Sig.
Agriculture, forestry, fishing and hunting	-0.06	-0.80		0.00	0.00	
mining	0.36	4.25	***	0.22	2.10	*
Construction	0.04	0.31		0.04	0.51	
Manufacturing	0.07	0.99		0.07	0.82	
Wholesale trade	0.11	1.49		0.04	0.47	
Retail trade	-0.13	-1.19		0.03	0.22	
Transportation and warehousing	-0.05	-0.62		0.10	0.90	
Utilities	0.11	1.59		0.07	0.85	
Information	0.05	0.55		-0.06	-0.63	
Finance and insurance	0.20	2.08	*	0.03	0.31	
Real estate and rental and leasing	0.40	3.49	***	0.25	2.32	*
Professional, scientific, and technical services	0.36	2.93	**	0.36	2.61	**
Management of companies and enterprises	0.14	1.96		0.05	0.59	
Administrative and support and waste management services	-0.18	-2.11	*	-0.08	-0.71	
Educational services	-0.11	-1.37		0.07	0.76	
Health care and social assistance	-0.13	-1.52		-0.28	-2.22	*
Arts, entertainment, and recreation	0.25	3.23	**	0.03	0.31	
Accommodation and food services	-0.33	-2.47	*	-0.26	-1.90	
Other services (except public administration)	-0.22	-2.70	**	0.14	1.17	
Public administration	0.21	2.44	*	0.15	1.37	

Here we see effects substantially in the same direction, but somewhat larger for men, it may be due to the higher probability of men working full time, thus magnifying the impact on household income.

However, analysis of household income while suited to describe the environment in which employment occurs may not be the most interesting in terms of sex based differences in pay. To take a closer look at inequity we will examine the earnings of men and women employed full time. (The examination of industry and occupation relative household income was necessary to establish the indices that will be used in the subsequent analyses.)

What makes the difference in men and women's pay for full time work? One way to explore this question is to look at the variables widely used to explain those differences and their relationship with income. The following table reports the results of two regression equations, one for men and one for women. The independent variables are the ratio of children 18 or under (for the census block, so it is the same number of men and women), average age of men and women in working years (usually viewed as a surrogate for experience), educational attainment (a human capital variable), occupational and industry index (described above, indicates the monetary value of opportunities in the block), and labor pool participation (percent employed full time, part time 15 – 34 hours per week, or unemployed).

In the analysis reported below all these variables were forced into the equation, permitting a direct comparison between the effects for women and men. When viewed together the only effect significant for men is occupation, what one does. While occupation does play a substantial role for women, so do years of education and the abundance of children in the block. Children are generally supposed to reduce the earnings of women due to childcare responsibilities. Here the effect is the opposite, children are associated with higher earnings for women employed full time. The best explanation comes from the qualitative portion of our analysis, where interviews showed that the costs of child rearing encourage women to seek more lucrative work.

Force Regression DV = earnings of full time men & women	Men			Women		
	Standardized Beta	t	Sig.	Standardized Beta	t	Sig.
House with Kids under 18/pop	0.10	0.98		0.26	2.821	0.01
Avg Age (16 -69) *	-0.06	-0.59		-0.04	-0.372	
Avg Yrs of School *	0.12	1.75		0.36	4.185	0.00
Occupational Index *	0.61	7.85	0.000	0.32	3.492	0.00
Industry Index *	0.07	1.00		0.11	1.333	
% work FT 35+hrs/wk >40wks *	0.13	1.20		0.13	1.479	
% work 15-34hr/wks >40wks *	0.05	0.52		-0.01	-0.134	
unemployed/men in labor force *	-0.06	-0.86		0.01	0.133	

* numbers computed within men or women

The concern with conducting the analysis as was done here (forcing all the variables into the equation) is that if some of the variables are redundant their effect will be shared. This creates the possibility that an effect that would otherwise have been important disappears as its impact is shared among several variables. To avoid this one uses a stepwise procedure in which the variables which best predicts income is entered first, then the one which best predicts the remaining variance, until the addition of the next effect does not significantly improve the model. The results from such an analysis are reported below.

	Men			Women			
	Standardized Beta	t	Sig.	Standardized Beta	t	Sig.	
Men Occupational Index	0.63	9.59	0.000	Women Occupational Index	0.36	4.397	0.00
Avg Yrs of School Men	0.17	2.88	0.005	Avg Yrs of School Women	0.37	4.672	0.00
% men work FT 35+hrs/wk >40wks	0.18	2.85	0.005	House with Kids under 18/pop	0.23	3.299	0.00
				% females work 35+hrs/wk >40wks	0.17	2.340	0.02

We see very similar models for men and women. Occupation, educational attainment and percent working full time all associated with higher average earnings for full time employees. The last factor, percent working full time may warrant further consideration. The fact that the more people working full time is associated with higher average pay for fulltime work suggest a market effect. It is a more attractive market, so more people are pulled into full time work. The one factor which is unique to women is the effect of children.

Given the importance of occupation for both men and women, it is worth taking a closer look at each occupation in relation to the average earning of full time workers (broken down by sex). Again, there are differences between men and women in what is associated with greater earnings. Of the significant effects larger percentages of men in architecture and lower percentages in farm management, community/social service, protective services other than fire and police, food preparation, building & grounds maintenance, office & administrative support, farming & forestry, motor vehicle, and material moving are associated with higher earnings. Only two of these variables are significant for women. Farming and forestry is negatively related to earnings (as was true for men), but the proportion of people working in protective services other than fire or police is positively related to earning, opposite to the effect for women. The percent of women in drafting, health technology, fire fighting & policing, and production are associate with lower earnings for women.

Regression DV = Earnings of fulltime men and women with % (men or women) in each occupation	Men			Men		
	Standardized			Standardized		
	Beta	t	Sig.	Beta	t	Sig.
% Management occupations not farming	0.04	0.32		0.13	0.97	
% Farm managers	-0.43	-4.26	0.000	0.00	-0.01	
% Business operations specialists	-0.01	-0.15		0.07	0.74	
% Computer & math. occupations	-0.03	-0.28		0.02	0.25	
% Architects, surveyors, & engineers	0.24	2.89	0.005	0.05	0.70	
% Drafters, engineering & Mapping technicians	-0.08	-1.14		-0.20	-2.39	0.019
% Life, physical & social Science	-0.03	-0.42		-0.06	-0.73	
% Community & social service	-0.17	-2.20	0.031	-0.10	-1.11	
% Legal occupations	0.03	0.32		0.16	1.78	
% Education, training & library occupations	0.05	0.54		-0.04	-0.22	
% Art, entertainment & media	-0.17	-1.92		0.01	0.12	
% Health diagnosis & treating, practitioners & techs	0.12	1.25		0.09	0.76	
% Health technologists & technicians	-0.12	-1.45		-0.24	-2.73	0.008
% Healthcare support services	-0.16	-1.78		-0.20	-1.93	
% Fire fighters & law enforcement	0.00	-0.05		-0.27	-3.40	0.001
% Other protective service, includes supervisors	-0.24	-2.39	0.019	0.18	2.22	0.029
% Food preparation & related services	-0.23	-2.58	0.011	-0.27	-1.62	
% Building & grounds maint. & cleaning	-0.17	-2.10	0.039	-0.20	-1.62	
% Personal care & service	0.04	0.51		-0.14	-1.50	
% Sales & related occupations	-0.16	-1.86		-0.30	-1.42	
% Office & administrative support	-0.19	-2.35	0.021	-0.14	-0.63	
% Farming, fishing & forestry occupations	-0.26	-2.66	0.009	-0.30	-2.92	0.004
% Production occupations	-0.13	-1.35		-0.32	-3.34	0.001
% Supervisors of transport & moving workers	-0.02	-0.26		0.03	0.44	
% Aircraft & air traffic control	0.12	1.50		0.09	1.18	
% Motor vehicle operators	-0.21	-2.34	0.021	-0.13	-1.22	
% Rail, water & other transportation occupations	0.00	0.06		0.11	1.44	
% Material moving workers	-0.23	-2.71	0.008	-0.13	-1.61	

Once again, the number of variables used to make predicts risk redundancy, so a step wise regression is employed to identify the variables in a sequential fashion to identify the occupations which are most influential

Stepwise Regression DV = Earnings Full Time Men	Men			Stepwise Regression DV = Earnings Full Time Women	Women		
	Standardized Coefficients Beta	t	Coefficients Sig.		Standardized Coefficients Beta	t	Coefficients Sig.
% M Architects, surveyors, & engineers	0.36	5.09	0.000	% F Management occupations not farming	0.24	3.50	0.001
% M Management occupations not farming	0.40	5.74	0.000	% F Health diagnosis & treating, practitioners & techs	0.25	3.48	0.001
% M Food preparation & related services	-0.26	-3.53	0.001	% F Legal occupations	0.24	3.42	0.001
% M Farm managers	-0.44	-5.36	0.000	% F Production occupations	-0.22	-3.25	0.002
% M Healthcare support services	-0.29	-4.42	0.000	% F Farming, fishing & forestry occupations	-0.20	-3.11	0.002
% M Office & administrative support	-0.17	-2.31	0.023	% F Healthcare support services	-0.15	-2.31	0.022
% M Sales & related occupations	-0.16	-2.18	0.031	% F Building & grounds maint. & cleaning	-0.17	-2.55	0.012
				% F Health technologists & technicians	-0.15	-2.21	0.029
				% F Other protective service, includes supervisors	0.16	2.42	0.017
				% F Fire fighters & law enforcement	-0.15	-2.21	0.029

For men, the occupations associated with higher full time earnings are management (except farm management which is negatively associated with earnings) and architecture. The other occupations have a negative relationship with men's full time earnings: food service, health support, office support, and sales. For women non-farm management also is associated with higher earnings, as is participation in legal and health diagnosis occupations. Participation in fire fighting and police work is associated with lower earnings, while participation in other protective services is associated with higher earnings for women. There is a negative association with the full time earnings of women based on participation in health support (also true for men), health technology, farming & forestry, building maintenance, and production.

One concern is that the male/female differences may be due to women and men accessing different jobs within the occupation. For example, there are a range of jobs within production, and they have a range of pay. If women are only accessing the jobs at the lower end of the pay scale, then increased participation would lead to lower average wages for women. If men were accessing the full range of positions then there would be negligible impact on average earnings. The results are consistent with this explanation, although the statistics certainly do not prove that this is what is happening.

Women's participation in full time employment.

One of the questions which has not been addressed are the possible reasons for women participating in full time employment at a substantially lower rate than do men. Looking at some

of the factors which might influence the choice to work full time, the only independent factor is the industry index (based on all people working).

DV = % Women working full time	Standardized Coefficients Beta	t	Sig.
Households with Kids under 18	0.09	0.70	
Occupational Index ALL	-0.03	-0.22	
Industry Index ALL	0.38	3.16	0.002
Avg Age Women (16 -69)	0.18	1.50	
Avg Yrs of School Women	0.02	0.19	

To take a closer look at this a stepwise regression was used to identify the most influential industries in terms of women's full time participation in work. However, the results look quite different if we use the percent participation in industries for everyone in the census block or limit it to women. First we look first at everyone, which is consistent with thinking of industry as an attribute of the area (i.e., if one were to bring jobs into a community it would be done based on the opportunities it would create for all).

	Standardized Coefficients Beta	t	Sig.
% management/industry	-0.28	-3.86	0.000
% utilities/industry	0.22	2.95	0.004
% information/industry	0.21	3.25	0.002
% construction/industry	0.23	3.37	0.001
% accommodation and food/industry	0.25	3.30	0.001
% agriculture/industry	0.19	2.63	0.010
% administrative and support/industry	0.17	2.41	0.017

Note that of the 6 industries that have a positive association with women's participation in full time employment, several have been associated with lower earnings for women. The more workers who are in management, the less the participation of women.

If we use the percent of women who work in the different industries we see a different picture. As the percent of women who work in support, agriculture, the arts, healthcare, and manufacturing go up, the percent of women working full time goes down. As most of these fields were associated with lower earnings this makes sense.

DV = % Women working full time	Standardized Coefficients		Sig.
	Beta	t	
% women in support	-0.50	-6.96	0.000
% women in finance/industry	0.14	2.00	0.048
% women in manufacturing/industry	-0.26	-3.52	0.001
% women in health care/industry	-0.26	-3.81	0.000
% women in professional/industry	0.15	2.04	0.043
% women in other services/industry	0.18	2.64	0.009
% women in arts,etc/industry	-0.18	-2.44	0.016
% women in agriculture/industry	-0.13	-2.04	0.044

One way of looking at the question is as one of difference between men and women, most frequently expressed as women's wages as a fraction of men's wages. When this is computed for each of the census blocks the average ratio is 62.0%, the smallest ratio for a census block was 43.5% and the highest was 89.2%.

We can treat this ratio as the dependent measure and regress the other measures we have been using in a stepwise manner to explore which factors are associated with the magnitude of difference. A negative coefficient means that the ratio is smaller (i.e., women make less relative to men) the greater the value of the variable. The more households with children 18 or under, the higher the occupational index for men, and the more women who are working part time, the lower the ratio. Women's earnings are relatively higher when the industry index for women is higher, women have more education, are older (i.e., more experience), and are working full time.

DV = (women's earnings / men's earnings) for full time workers	Standardized Beta	t	Sig.
House with Kids under 18/pop	-0.35	-3.23	0.002
Industry Index Women	0.26	3.05	0.003
Men Occupational Index	-0.35	-4.18	0.000
females work 15-24 hrs/wk >40wks	-0.15	-1.83	0.069
Avg Yrs of School Women	0.29	3.63	0.000
Avg Age Women (16 -69)	0.23	2.35	0.020
men unemployed/men in labor force	0.19	2.57	0.012
% females work 35+hrs/wk >40wks	0.18	1.99	0.049

Given the positive effect of industry, one might want to look at which industries are associated with greater similarity in earnings. The results of the stepwise regression of percent women in industry with the wage ration. The results are somewhat disconcerting. The more women in

mining, the less the ratio! Presumably this is not due to the women who work in mining, but due to the fact that more men than women work in mining. If the jobs are there for women to take, they are taken by men in still greater numbers. Thus, the increases in wages due to employment in the mining industry is enjoyed by more men than women, which would drive the ratio down. Increased participation in the real estate industry might be easily understood to improve women's relative earnings.

DV = (women's earnings / men's earnings) for full time workers	Standardized Beta	t	Sig.
% women mining/industry	-0.34	-4.22	0.000
% women accommodation/industry	0.24	3.04	0.003
% women real estate/industry	0.21	2.59	0.011

Appendix 4

Survey Instrument for Telephone Survey

SUBJECT CONSENT

Good [morning, afternoon, evening.] Let me introduce myself. I am [] from the University of Wyoming. First, let me tell you, I am not a telemarketer. I am a [graduate student or professor] conducting research on the wage disparity between men and women in Wyoming. In order to understand the issue better we are conducting a phone survey that will take approximately 10-20 minutes. We are interviewing three people in each county and your name was randomly selected from the phone directory.

The survey includes questions regarding the jobs that people in your household do, as well as how you have made decisions regarding your work choices. When we finish our interviews, we will report our findings, in aggregate, to the state legislature as well as any other interested body. You will not be personally identified in any of our reports. Files from this survey will be kept by the researchers for 5 years, and will only be accessed by the researchers. Your participation may help the state, employers, and/or individuals address the wage gap between men and women.

Please note that your participation in this research is entirely voluntary and you may discontinue at any time. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. All you need to do is tell me you want to stop and we will terminate the interview. We foresee minimal risk to your participation in this survey. Are you willing to participate?"

Name, _____ Date _____ Time _____

If you have any questions or concerns you may contact my supervisor, Catherine Connolly, Director of Women's Studies and Associate Professor of Sociology at 307-766-2733.

Survey Instrument

1. Describe your current household- how many people, their ages, race and/or ethnicity, and their relationships to each other. [Note – make sure to indicate who is responding to the questions.]

2. For the past year, describe every way that income was generated by the members of the household—e.g. paid jobs in regular full-time work, temporary or part-time work, lemonade stands, etc... If you're uncomfortable doing so, indicate about how much each person earned from that income last year.

3. Tell us about the benefits the people in your family receive from their employer. For example, do you or another family member receive health insurance, a pension plan, retirement, etc. through your job?

4. Has the inclusion of benefits ever affected the decisions your family has made concerning involvement in the paid labor force?

[If yes,] how so?

5. Describe the educational and/or vocational training of your household members.

6. Describe specific things that you or members of your household do in the informal work sector. For example, do you watch your neighbors kids occasionally, sell crafts or feed, paint houses, walk dogs, etc?

7. Describe care giving that is done by members of your household for others not in your house hold, for example—babysitting for grandchildren, care of an elderly parent who lives outside the household, etc. How frequently do you do these things?

8. If you answered yes to either of the last two questions, how does this care giving and informal work impact paid labor force participation by members of your household?

9. How far do you travel to get to work?
 - 9a. In general, how far would you be willing to travel to work everyday?

10. In your household, is one person's career considered primary and the others secondary. For example, do some members of your household need to modify their work or career choices for the primary person's career? Explain.

11. Were you born in Wyoming? If not, where did you come from, when did you move here and why?

12. As an adult, have you, along with other members of your household, ever relocated/moved from another town or area?
- a. [If yes,] For which member of your household did you all relocate for?
 - b. Why was the decision to relocate made?
 - c. What kind of work did the other adult member(s) of your household find after you relocated?
 - d. Was this work in their field?
 - e. Was it difficult for the other adult member(s) of your household to find employment?
 - f. Do you think that the relocation has had a significant effect on the household? Please explain.
13. If you were offered a job that paid more, had better benefits, or simply offered more opportunity than your current employment situation, do you think your spouse/partner would agree to relocate to enable you to accept the opportunity?
- a. What if there was not an equal or better opportunity for him/her in the new community?
 - b. If the situation were reversed, how would you respond if your spouse/partner or other household member were offered a better job in another area? Would you relocate? Would you relocate if there wasn't an equal or better opportunity for you?

14. Have you ever had children living in your household? Describe (if different from the answer to Question 1).

- a. Did either you or your partner leave the workforce after having your child[ren], other than for a short maternity leave (i.e. less than 8 weeks)?
- b. If yes to a, For how long did s/he leave the workforce?
- c. If yes to a, In what line of work was s/he in?
- d. If yes to a, Do you think that leaving, then re-entering the workforce has had a significant impact on her/his income and/or job opportunity?
- e. If yes to a, How important was this to her/him? Please explain?
- f. If yes to a, Was it difficult for him/her to find employment after deciding to re-enter the workforce?

15. If yes to 14, Did s/he alter the conditions and practices of employment after re-entering the workforce? In what way(s) were her/his work practices altered? (i.e. will s/he travel, work late hours, work overtime, etc.)

16. In Wyoming, women earn less than men on the average do. It is usually not because they aren't paid the same for the same jobs since that is illegal. Why do you suppose that women earn less than men do? Do you think it is important for individuals, employers and/or the state to address the issue? Explain what you think might be the best types of responses.

17. Is there anything that you would like to add?

Appendix 5

Complete Calculations for Cost/Benefit on Where Women Work

These calculations are done on an Excel spread sheet. To get the calculations into a format that would fit this report considerable summary was done in Figure 24. This appendix shows the original spreadsheet and all the basis for those calculations.