Dalton, Trey, Matteo, and Walker

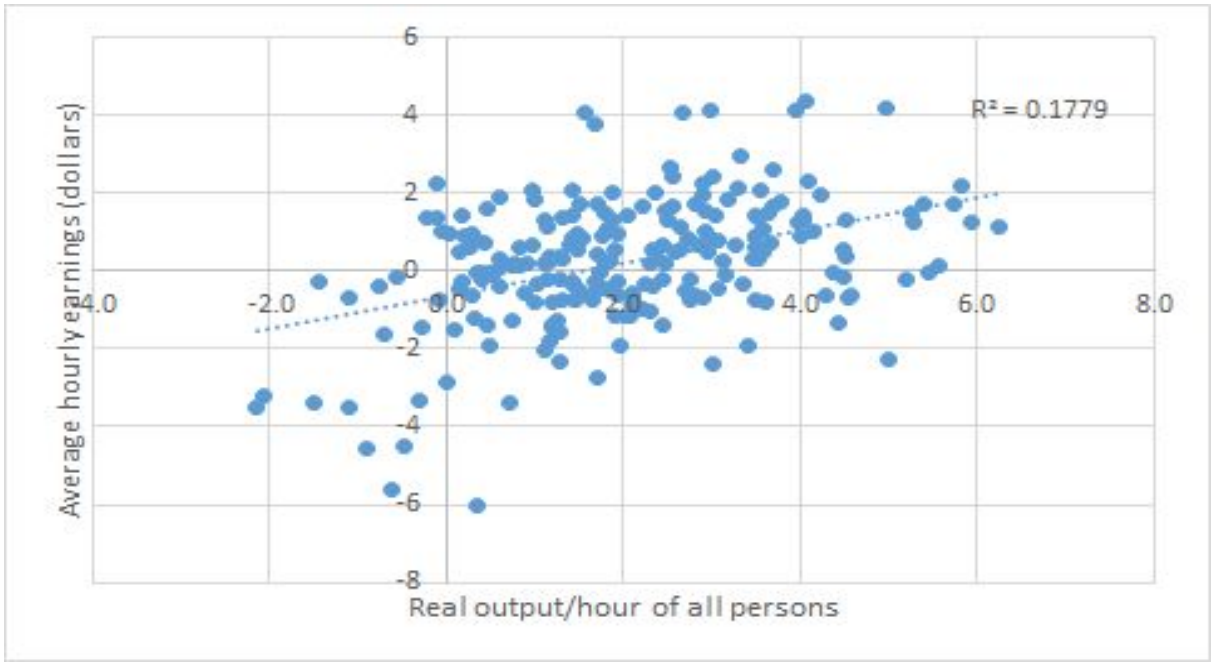
Professor Herdelin

ECON-102-C

Does the Relationship of W = MPN Hold?

Our data shows that the relationship between wages and marginal product of labor is weak. Using data from FRED on Real Output per Hour of All Persons and plotting it against Average Hourly Earnings of Production and Nonsupervisory Employees should provide with a model of wages vs. marginal product of labor. A scatterplot of this relationship is shown below and the R2-value was found to be 17.79%. This indicates that about 18% of the change in average wages are explained by the productivity of the worker. While the R2-value is relatively low, the p-value from the regression is also less than 0.05, indicating that the model is significant. Therefore, there is a very low chance that the R2-value is due to random chance, and that productivity is one factor in determination of wages. However, other factors need to be accounted for in order to explain all of the variations in the average wage of workers. It is possible that the relation of W = MPN is a simplification so that all the other factors involved do not need to be accounted for and this analysis highlights the discrepancy of this simplification. For example one factor that plays a role on wages that is not included in MPN is cost of living. Looking at junior software engineer salaries in Pennsylvania and California makes this clear. According to indeed.com the average salary for a software engineer in California is $79,614 and in Pennsylvania it is $56,211. California

is known to have a higher cost of living and as a result the wages there are higher to compensate.



Regression Statistics	
Multiple R	0.421785637
R Square	0.177903124
Adjusted R Squar	0.174114659
Standard Error	1.484810548
Observations	219

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	103.5290904	103.5291	46.95915895	7.38814E-11
Residual	217	478.411733	2.204662		
Total	218	581.9408234			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	-0.636824208	0.160513148	-3.96743	9.87207E-05	-0.953188608	-0.32046	-0.95319	-0.32046
X Variable 1	0.423429222	0.061790352	6.852675	7.38814E-11	0.301643138	0.545215	0.301643	0.545215

References

Junior Software Engineer Salaries in Pennsylvania. (2020, January 6). Retrieved from https://www.indeed.com/salaries/junior-software-engineer-Salaries,-Pennsylvania

Junior Software Engineer Salaries in California. (2020, January 25). Retrieved from https://www.indeed.com/salaries/junior-software-engineer-Salaries,-California