

Age-Labor Income Profile

Predicting Income

Sany León, Andrés Suárez, and Juan Rueda

2026-02-18

Research Question

¿How does wage vary with age in Bogota?

In Bogota, wages tend to increase with age until a mid-life point and then decrease.

This is consistent with the **human capital theory**:

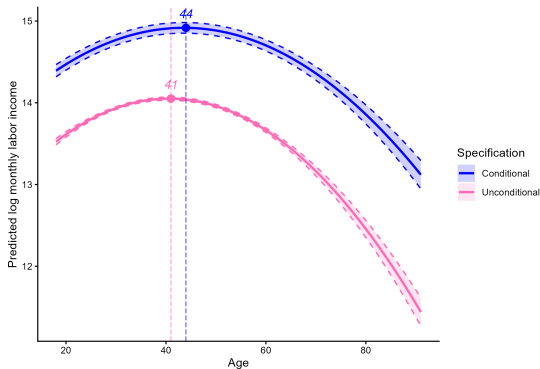
- Wages increase at a decreasing rate.

Data

Estadísticas descriptivas relevantes

Results

Figure 1: Age-labor Income profiles



Results

	Log Monthly Labor Income		
	Linear (1)	Quadratic (Unconditional) (2)	Quadratic (Conditional) (3)
Constant	14.0*** (0.023)	12.4*** (0.064)	12.8*** (0.070)
Age	-0.003*** (0.0006)	0.084*** (0.003)	0.070*** (0.003)
Age squared		-0.001*** (3.76×10^{-5})	-0.0008*** (3.43×10^{-5})
Total hours worked			0.013*** (0.0004)
= Privatesectoremployee			-0.756*** (0.034)
= Self-employed			-1.24*** (0.035)
= Domesticworker			-1.45*** (0.047)
= Employer			-0.529*** (0.049)
= Other			-1.94*** (0.281)
= Daylaborer			-1.41* (0.790)
Number of observations	14,764	14,764	14,764
R ²	0.00187	0.05000	0.22643
Adjusted R ²	0.00180	0.04987	0.22596
Root Mean Squared Error	0.89556	0.87370	0.78841

Discussion

1. Evidence of a Non-Linear and Concave Age–Income Profile

The quadratic specifications show a positive coefficient on age and a negative coefficient on age², generating a **concave age–earnings profile**, consistent with human capital theory. There is clear evidence of an **earnings peak within the observed age range**, around 40 years.

In contrast, the linear model fails to capture this non-linearity and exhibits very low explanatory power.

2. Effect of Conditioning on Hours Worked and Employment Type

Including controls for hours worked and employment type shifts the estimated **earnings peak to slightly older ages (approximately 41–43 years)** and substantially improves model fit.

This suggests that part of the observed non-linearity is driven by differences in labor intensity and occupational structure, rather than solely by human capital accumulation.

Discussion

3. Economic Interpretation in the Context of Bogotá's Labor Market

The results support the theoretical prediction of a concave life-cycle earnings profile. However, the shape of the profile is influenced by labor market characteristics such as occupational heterogeneity and variation in working hours.

Overall, the observed age-income pattern reflects both experience accumulation and structural labor market factors.