Creative Destruction and Subjective Well-Being

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December 29, 2013

Abstract

This paper analyzes the effect of Schumpeterian creative destruction on subjective well-being. We measure subjective well-being using the Cantril ladder of life, a measure of individuals' overall evaluation of their lives, and we also use a measure reflecting individuals' current "worry". For creative destruction we use establishment turnover following Davis et al (1996). The turnover data are MSA-level panel data from the Business Dynamics Statistics and the subjective well-being data are individual data from Gallup. We find that the effect of creative destruction on subjective well-being is unambiguously positive when we control for MSA-level unemployment, less so if we do not. We also find that creative destruction has a more positive effect on life satisfaction in states with more generous unemployment insurance policy. Finally, we find that the effect of creative destruction on subjective well-being tends to be more positive for young individuals, for the non-religious, for smokers, for less educated individuals and for the non-hispanic white.

JEL Codes: I31, J63, J65, O33, O38, Z19

Keywords: well-being, ladder, creative destruction, growth, turnover, unemployment

[STILL PRELIMINARY]

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1 Introduction

Should GDP growth be a primary objective for countries to pursue? The answer is far from being consensual. Thus some argue (e.g. Sen, Stiglitz and Fitoussi (2010)) that indicators other than (per capita) GDP growth should also be taken into account, in particular to reflect environmental quality, unemployment, and income inequality. Others take a more direct stand and argue that more GDP growth does not translate into more "happiness", in particular because it constantly destroys jobs and skills; therefore, according to that view, GDP growth should simply be disregarded as a social objective to pursue. Yet others (e.g. Murtin et al (2013)) propose to replace (per capita) GDP growth by a synthetic welfare measure which includes GDP growth but does not boil down to it.

In this paper, we focus attention on a particular measure of subjective well-being, namely the Cantril ladder of life, a measure of individuals' overall evaluation of their lives, and we investigate whether Schumpeterian creative destruction affects this measure positively or negatively. To measure creative destruction, we follow Davis, Haltiwanger and Schuh (1996) and use their three measures of turnover, namely: (i) the establishment birth rate plus the establishment death rate; (ii) the job creation rate plus the job destruction rate; (iii) the job creation rate from establishment births plus the job destruction rate from establishment deaths. The data come from the Business Dynamics Statistics from the Census and are at the MSA level. To proxy for subjective well-being, our preferred measure is the anticipated Cantril ladder of life,[1] which is constructed based on the question "Imagine a ladder with steps numbered from zero at the bottom to 10 at the top; the top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. Which level of the ladder do you anticipate to achieve in five years?"Another measure of well-being we consider, and which more directly captures how individuals react to the risk involved in creative destruction, is the "worry" measure. The "worry" variable takes values 0 or 1, according to an individual's answer to the question: "Did you experience some worry yesterday?". The data come from the Gallup Healthways Wellbeing Index data, which collects data on 1,000 randomly selected Americans each day. The period covered is 2008-2011.

In the first part of the paper we develop a simple Schumpeterian model of growth and unemployment to organize our thoughts and generate predictions on the potential effects of turnover on life satisfaction. In this model growth results from quality-improving innovations. Each time a new innovator enters a sector, the worker currently employed in that sector loses her job and the firm posts a new vacancy. Production in the sector resumes with the new technology only when the firm has found a new suitable worker. Life satisfaction is proxied by the expected discounted valuation

[1] We will also show results for the effects of creative destruction on the current Cantril ladder.

of an individual's future earnings. In the model a higher rate of turnover has both a direct and an indirect effect on life satisfaction. The direct effect is that, everything else equal, more turnover translates into a higher probability of becoming unemployed which in turn reduces life satisfaction. The indirect effect is that a higher rate of turnover implies a higher growth externality and therefore a higher net present value of future earnings: this enhances life satisfaction. A first prediction of the model is that higher turnover increases life satisfaction more the more generous the local unemployment insurance policy. A second prediction is that a higher rate of innovation (i.e. a higher turnover rate) increases life satisfaction more the lower individuals' discount rate. A third prediction is that higher turnover has a less positive (or more negative) effect on life satisfaction for more risk-averse individuals.

In a second part of the paper we test the predictions of the model by regressing our measures of subjective well-being on turnover, and its interactions with individual characteristics (age, education level, gender, marital status, race, religiosity and smoking behavior) and with labor market characteristics (the generosity of employment benefits). Our main finding is that the effect of creative destruction on subjective well-being is unambiguously positive when we control for MSA-level unemployment, less so if we do not, and this holds at all levels of aggregation: from state level to MSA level to individual level analysis. Next, when interacting creative destruction with state-level labor market policy, we find that creative destruction increases life satisfaction more in states with more generous unemployment benefits in the state. Finally, when interacting creative destruction with individual characteristics, we find that creative destruction has a more positive effect on life satisfaction for younger individuals than for older individuals. Similarly, creative destruction appears to increase life satisfaction more for non religious individuals than for religious individuals. Also, creative destruction increases life satisfaction more for smokers than for non-smokers, more for less educated individuals than for individuals with a college degree, and more for non-hispanic whites than for the other ethnicities. Finally, we find that creative destruction increases individuals' worry, which again reflects the fact that more creative destruction is associated with higher perceived risk by individuals.

The paper relates to several strands of literature. First to the literature on growth, job turnover and unemployment.[2] In particular this literature points to two opposite effects of growth on unemployment: one is a "capitalization" effect whereby more growth reduces the rate at which firms discount the future returns from creating a new vacancy: this effect pushes towards creating more vacancies and thus towards reducing equilibrium unemployment; the counteracting effect is a "creative destruction" effect whereby more growth implies a higher rate of job destruction which in turn tends to increase equilibrium level of unemployment. We contribute to this literature by

[2] E.g see Davis, Haltiwanger, and Schuh (1996), Mortensen and Pissarides (1998), and Aghion and Howitt (1998).

looking at the counteracting effects of innovation-led growth on subjective well-being.

More closely related to our paper is the literature on income and well-being. In his 1974 seminal work, Richard Easterlin provided evidence that, within a given country, happiness is positively correlated with income across individuals but this correlation no longer holds across countries nor within a given country over time[3] The so-called Easterlin paradox has been rationalized by resorting to relative income stories.[4]. However, recent work rejected the existence of a critical income threshold above which income has no further effect on life satisfaction : in his cross-country analysis of the Gallup World Poll, Deaton (2008) indeed finds a relationship between log of per capita income and life satisfaction close to linear, i.e. a similar slope for poor countries and rich ones[5]

Our paper contributes to this literature looking at how one important engine of growth, namely creative destruction with its resulting flow of entry and exit of firms and jobs, affects subjective well-being differently for different types of individuals and in different types of labor markets.

The remaining part of the paper is organized as follows. Section 2 develops the model and generates predictions on how the effects of turnover on subjective well-being depend upon individual or local labor market characteristics. Section 3 presents the data and the empirical approach. Section 4 describes the empirical results. Section 5 concludes.

2 Theoretical analysis

2.1 A toy model

In this section, we will offer a simple model to motivate our empirical analysis. The source of economic growth is Schumpeterian creative destruction which at the same time generates endogenous obsolescence of firms and jobs. The workers in the obsolete firms join the unemployment pool until they are matched to a new firm. Hence, creative destruction will have both a positive effect (by

[3]Easterlin's results have been much debated. Some work even rejects the importance of income in life satisfaction across individuals within a country, arguing that income has a small effect relative to other circumstances of life such as unemployment or marital status (Blanchflower and Oswald, 2004), or that the effect of income is only temporary (Di Tella et al, 2007), suggest that the effect of an income shock on life satisfaction disappears within four years.

[4]The idea is that, past a certain threshold, additional income enters life satisfaction only in a relative way, meaning that, provided you can fulfill basic needs, what really matters for happiness is to be richer than one's neighbor or reference person.

[5]An important step forward in this literature has come from the distinction, among all subjective well-being measures, between "evaluative well-being", which captures people's judgement over their whole life, and "hedonic/emotional well-being", which is more about the current experience. Thus, Deaton and Stone (2013), provide within US evidence on hedonic well-being ("did you experience a lot of happiness yesterday?) that could be consistent with a relative income story whereas evaluative well-being (as measured by how individuals assess their lives on a 0 to 10 ladder) is more closely related to absolute income. They also suggest alternative explanations for their overall evidence that would have to do with evaluative well-being being determined by "permanent income and hedonic well-being by more "transitory income, but they mostly argue that relative income and well-being is a remaining puzzle of the literature.

increasing economic growth) and a negative effect (through unemployment due to obsolescence) on well-being. Which effect dominates will depend both upon individual characteristics (discount rate, degree of risk-aversion,...) and upon policy characteristics (in particular, the generosity of unemployment benefits).

2.1.1 Production technology and innovation

We consider a multi-sector Schumpeterian growth model in continuous time. The economy is populated by infinitely-lived and risk-neutral individuals of measure one, and they discount the future at rate[6]

$$r = \rho. \tag{1}$$

The final good is produced using a continuum of intermediate inputs, according to the logarithmic production function:

$$\ln Y_t = \int_{j \in \mathcal{J}} \ln y_{jt} dj$$

where $\mathcal{J} \subset [0,1]$ is the set of active product lines. We will denote its measure by $J \in [0,1]$. The measure J is invariant in steady state.

Each intermediate firm produces using one unit of labor according to the following linear production function,

$$y_{jt} = A_{jt} l_{jt},$$

where $l_{jt} = 1$ is the labor employed by the firm, and the same in all sectors. Thus the measure of inactive product lines is equal to the unemployment rate

$$u_t = 1 - J_t,$$

where u denotes the equilibrium unemployment rate. Our focus will be on balanced growth path equilibrium, therefore when possible, we will drop time subscripts to save notation.

2.1.2 Innovation and growth

An innovator in sector j at date t will move productivity in sector j from A_{jt-1} to $A_{jt} = \lambda A_{jt-1}$. The innovator is a new entrant, and entry occurs in each sector with Poisson arrival rate x which we assume to be exogenous for now.[7] Upon entry in any sector, the previous incumbent firm becomes obsolete[8] and its worker loses her job and the entering firm posts a new vacancy with an

[6] The analysis in this section can be straightforwardly extended to the case where individuals are risk-averse. See Section 3.2

[7] See Section 3.3 where weendogeneize entry.

[8] In the Appendix we extend the model so as to also allow for exogenous job destruction.

instantaneous cost cY.[9] Production in that sector resumes with the new technology when the firm has found a new suitable worker.

2.1.3 Labor market and job matching

Following Pissarides (1990), we let

$$m(u_t, v_t) = u_t^{\alpha} v_t^{1-\alpha} \tag{2}$$

denote the arrival rate of new matches between firms and workers, where u_t denotes the number of unemployed at time t and v_t denotes the number of vacancies. Thus the flow probability for each unemployed worker to find a suitable firm is

$$m(u_t, v_t)/u_t,$$

whereas the probability for any new entrant firm to find a suitable new worker is

$$m(u_t, v_t)/v_t.$$

Finally, we assume that in each intermediate sector where a worker is currently employed, the worker appropriates fraction β of profits whereas the complementary fraction $(1-\beta)$ accrues to the employer.

2.1.4 Valuations and life satisfaction

Our proxy for life satisfaction is the average present value of an individual employee, namely:

$$W_t = u_t U_t + (1-u_t)E_t,$$

where U_t is the net present value of an individual who is currently unemployed, and E_t is the net present value of an individual who is currently employed.[10]

The value of being currently employed, satisfies the asset equation:

$$\rho E_t - \dot{E}_t = w_t + x(U_t - E_t).$$

In words: the annuity value of being currently employed is equal to the capital gain $\dot{E}_t$ plus the wage rate w_t at time t and with arrival rate x the worker becomes unemployed as the incumbent firm is being displaced by a new entrant. Here we already see the negative effect of turnover on currently employed workers.

[9] Below we provide sufficient conditions under which the incumbent firm in any sector will choose to leave the market as soon as a new entrant shows up in that sector. The basic story is that, conditional upon a new entrant showing up, it becomes profitable for the incumbent firm to seek an alternative use of her assets.

[10] Thus our theoretical measure of subjective well-being is the ex ante expected valuation of a representative individual who does not know yet whether she will start being employed or unemployed. In the next section, we shall argue that the anticipated Cantril ladder is a good empirical proxy for this ex ante valuation indicator.

Similarly the value of being unemployed satisfies the asset equation:

$$\rho U_t - \dot{U}_t = b_t + (m(u_t, v_t)/u_t)(E_t - U_t).$$

As before, the annuity value of being currently unemployed is equal to the capital gain $\dot{U}_t$ plus the unemployment benefit b_t accruing to an unemployed worker, and with arrival rate $m(u_t, v_t)/u_t$ the unemployed worker escapes unemployment. For any given unemployment rate, turnover has a positive effect on the value of unemployed because it creates job opportunities.

2.2 Solving the model

We now proceed to solve the model for equilibrium production and profits, for the equilibrium steady-state unemployment rate, for the steady-state growth rate, and for the equilibrium value of life satisfaction.

2.2.1 Static production decision and equilibrium profits

Let w_t denote the wage rate at date t. The logarithmic technology for final good production implies that final good producer spends the same amount Y_t on each variety j. As a result, the final good production function generates a unit elastic demand with respect to each variety: $y_{jt} = Y_t/p_{jt}$.

Note that the cost of production is simply w_{jt} which is the firm-specific wage rate. Then the profit is simply

$$\pi_{jt} = p_{jt}y_{jt} - w_{jt} = Y_t - w_{jt}. \tag{3}$$

Next, the above sharing rule between wage and profits implies that

$$w_{jt} = \beta\left(Y_t - w_{jt}\right),$$

hence

$$w_{jt} = w_t = \frac{\beta}{1+\beta}Y_t$$

and

$$\pi_{jt} = \frac{1}{1+\beta}Y_t = \pi Y.$$

Clearly β determines the allocation of income in the economy, with a higher β shifting the income distribution towards workers.[11]

[11] Denote the value of an incumbent before entry by V_1 and after entry V_2.
Then we can express these value functions as

$$\begin{aligned} rV_1 - \dot{V}_1 &= \pi Y + x\left(V_2 - V_1\right) \\ rV_2 - \dot{V}_2 &= \pi Y + \frac{m}{v}\left(0 - V_2\right) \end{aligned}$$

2.2.2 Steady state equilibrium unemployment

Our focus is on a steady state equilibrium in which all aggregate variables (Y_t, w_t, U_t, E_t) grow at the same constant rate g, and where the measure of unemployed u and the number of vacancies and the interest remain constant over time. Henceforth, we can drop the time index from now on.

In steady state, the flow out of unemployment must equal the flow into unemployment. Namely:

$$m(u, v) = (1 - u)x. \tag{6}$$

The left-hand side is the flow out of unemployment, the right hand side is the flow into unemployment, equal to the number of active sectors $(1 - u)$ time the turnover rate x.

In addition, the number of sectors without an employed worker is equal to the number of sectors with an open vacancy, $u = v$. Combining this fact with the matching technology (2), we get:

$$m = u = v. \tag{7}$$

Putting these equations (6) and (7) together, we obtain the equilibrium unemployment rate $u = (1 - u)x$, or equivalently

$$u = \frac{x}{1 + x}, \tag{8}$$

which is increasing in the turnover rate x.

Now we can express the growth rate of the economy.

Lemma 1 *The balanced growth path growth rate of the economy is equal to*

$$g = m \ln \lambda,$$

where m denotes the flow of sectors in which a new innovation is being implemented (i.e., the rate at which new firm-worker matches occur).

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since in equilibrium $m = v$ we get

$$V_2 = \frac{\pi Y}{1 + r - g}. \tag{4}$$

Then we can express V_1 as

$$V_1 = \frac{(1 - \beta)\pi Y + xV_2}{x + r - g} \tag{5}$$

Note that (4) implies $\pi Y = (1 + r - g)\, V_2$. Substitute this into (5) :

$$\begin{aligned} V_1 &= V_2 + \frac{V_2}{x + r - g} \\ &> V_2. \end{aligned}$$

Hence any outside option O such that $V_1 > O > V_2$:

$$\frac{\pi Y}{1 + r - g}\left(1 + \frac{1}{x + r + g}\right) > O > \frac{\pi Y}{1 + r - g}$$

implies the incumbent firm will exit as soon as there is a new entrant. This is what we assume throughout this section.

Proof. See Appendix. ∎

Then, using the fact that in steady-state equilibrium we have:

$$m = u = \frac{x}{1+x},$$

we get the equilibrium growth rate as,

$$g = \frac{x}{1+x} \ln \lambda. \tag{9}$$

As expected, the growth rate is increasing in the turnover rate x and with the innovation step size λ.

2.2.3 Equilibrium valuations and life satisfaction

Recall that our proxy for life satisfaction is the average present value of an individual employee, namely:

$$W = uU + (1-u)E,$$

where:

$$\begin{aligned} rE - \dot{E} &= \beta\pi Y + x(U - E) \\ rU - \dot{U} &= bY + (m(u,v)/u)(E - U) \end{aligned}$$

Now, using the fact that in steady state

$$\dot{E} = gE \text{ and } \dot{U} = gU,$$

and that in equilibrium (see equation (7))

$$m/u = 1,$$

we obtain, after subtracting the second equation from the first:

$$(r-g)(E-U) = BY + (1+x)(U-E),$$

where

$$B \equiv \beta\pi - b.$$

This in turn implies that the difference between the value of being employed and unemployed depends positively on the flow income difference B, also positively on the growth rate but negatively on the turnover rate as a higher turnover rate implies an increased risk of becoming unemployed:

$$E - U = \frac{BY}{r - g + 1 + x}.$$

Substituting for $(E-U)$ in the above asset equations (11) and (10), yields:

$$\begin{aligned} U &= \left[bY + \frac{BY}{r-g+1+x}\right]\frac{1}{r-g}; \\ E &= \left[\beta\pi Y - \frac{xBY}{r-g+1+x}\right]\frac{1}{r-g}. \end{aligned}$$

so that, after substituting for E and U in the expression for W, and using the fact that in equilibrium $u = x/(1+x)$, we get the following expression for life satisfaction when individuals are risk neutral with $u(c) = c$:

$$W = \frac{Y}{r-g}\left[\beta\pi - \frac{xB}{1+x}\right]$$

where

$$g = \frac{x}{1+x}\ln\lambda.$$

We thus see two effects of turnover on life satisfaction. First, for given growth rate g, more turnover reduces life satisfaction. This is the *displacement* effect mentioned in the introduction: namely, higher turnover leads to a higher probability of workers losing their current job. On the other hand, higher turnover increases the growth rate g which in turns acts favorably on life satisfaction: this is the *capitalization* effect mentioned in the introduction. When does either effect dominate the other? The following proposition answers that question:

Proposition 1 *A higher turnover rate x increases life satisfaction W more the lower the discount rate ρ, i.e.:*

$$\frac{\partial^2 W}{\partial x \partial \rho} < 0$$

And life satisfaction increases with turnover when $\rho < \frac{\beta\pi\ln\lambda}{B}$, and it decreases with turnover otherwise. Moreover, life satisfaction increases more with creative destruction (i.e. with x) when the unemployment benefit is more generous. i.e.:

$$\frac{\partial^2 W}{\partial x \partial b} > 0.$$

Proof. The proposition follows immediately from the fact that:

$$\frac{\partial W}{\partial x} = \frac{Y\left[\beta\pi\ln\lambda - B\rho\right]}{\left[(1+x)(\rho-\ln\lambda)+\ln\lambda\right]^2} > 0.$$

so that

$$\frac{\partial^2 W}{\partial x \partial b} = \frac{Y\rho}{\left[(1+x)(\rho-\ln\lambda)+\ln\lambda\right]^2} > 0.$$

■

The condition for creative destruction having a positive net effect $\left(\beta\pi\left[1-\frac{\ln\lambda}{\rho}\right] < b\right)$ is intuitive: If people care more about the future (lower ρ), or if the innovation step size is bigger (bigger

λ), then the growth effect dominates and life satisfaction increases in the turnover rate x. Young workers have longer horizon than old workers. Therefore we can approximate worker age by their discount rate such that older workers have higher ρ. Then the above proposition generates the prediction that life satisfaction should increase more with turnover for younger individuals than for older individuals, and that it may actually decrease with turnover for the latter when it increases with turnover for the former.

Remark: The above analysis and proposition consider the effect of creative destruction on life satisfaction, factoring in the effect of creative destruction on unemployment. Now *if we look at the effect of turnover on life satisfaction controlling for unemployment, this effect is unambiguously positive*. To see this formally, recall that:

$$W = uU + (1-u)E,$$

where:

$$\begin{aligned} rE - \dot{E} &= \beta\pi Y + x(U - E) \\ rU - \dot{U} &= bY + (m(u,v)/u)(E - U) \end{aligned}$$

Now, using the fact that

$$m(u,v)/u = (1-u)x/u$$

and that in steady state

$$\dot{E} = gE \text{ and } \dot{U} = gU,$$

we obtain:

$$E - U = \frac{BY}{r - g + x/u}.$$

Substituting for $(E - U)$ in the above asset equations, yields:

$$U = \left[bY + [(1-u)x/u]\frac{BY}{r-g+x/u}\right]\frac{1}{r-g}, \tag{10}$$

and

$$E = \left[\beta\pi Y - \frac{xBY}{r-g+x/u}\right]\frac{1}{r-g}. \tag{11}$$

so that we get the following expression for life satisfaction when individuals are risk neutral with $u(c) = c$:

$$W = \frac{Y}{r-g}[ub + (1-u)\beta\pi]$$

which for given u is increasing in x since it is increasing in g and g is increasing in x.

3 Theoretical Extensions

3.1 Transitional dynamics

Now we focus on a sudden change in the entry rate to analyze its impact on the economy's transition from one steady state to the next.

Assume that the economy starts at its steady state with entry rate x_{low} and the entry rate suddenly increases from x_{low} to x_{hgh} such that $x_{hgh} > x_{low}$. We start by focusing on the unemployment rate first. After the change in the entry rate, the flow equation of the unemployment rate becomes

$$\dot{u}_t = (1 - u_t)\, x_{hgh} - m_t.$$

Since $u_t = v_t$ in every period, we get $m_t = u_t = v_t$; therefore

$$\dot{u}_t = x_{hgh} - (1 + x_{hgh})\, u_t. \tag{12}$$

The solution to this differential equation is simply

$$u_t = \left[\frac{x_{low}}{1 + x_{low}} - \frac{x_{hgh}}{1 + x_{hgh}}\right] e^{-\left(1+x_{hgh}\right)t} + \frac{x_{hgh}}{1 + x_{hgh}}.$$

Recall that the growth rate is simply $g = m \ln \lambda$. Therefore the aggregate growth rate of this economy during transition is

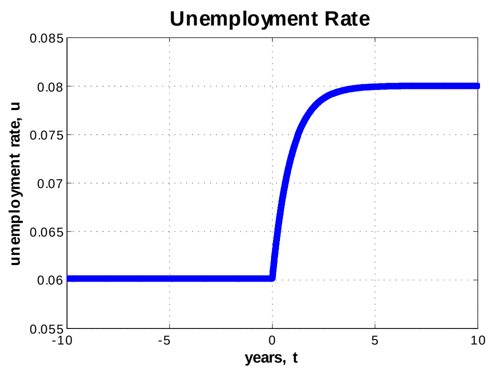
$$g_t = \left\{\left[\frac{x_{low}}{1 + x_{low}} - \frac{x_{hgh}}{1 + x_{hgh}}\right] e^{-\left(1+x_{hgh}\right)t} + \frac{x_{hgh}}{1 + x_{hgh}}\right\} \ln \lambda.$$

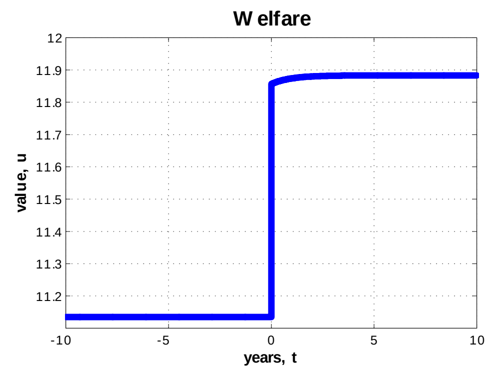
Now we turn to the value functions

$$\begin{aligned} rE_t - \dot{E}_t &= \beta\pi Y_t + x_{hgh}(U_t - E_t) \\ rU_t - \dot{U}_t &= bY_t + (m_t(u_t, v_t)/u_t)(E_t - U_t). \end{aligned}$$

Note that out of the steady state, it is not possible to solve these value functions further analytically. However, we can explore them numerically. For that, we need to determine 6 parameters: λ, x_{hgh}, x_{low}, ρ, β, and b. Since our model is stylized, our goal here is to show you the numerical properties of the model, rather than trying to provide a detailed calibration exercise. We pick the discount rate, which also corresponds to the interest rate in the benchmark model, to be $\rho = 5\%$. We will set $x_{low} = 6.4\%$ and $x_{hgh} = 8.7\%$ such that the steady-state unemployment rates are 6% and 8%, respectively. We set $\lambda = 1.18$ in order to obtain an initial steady state growth rate of 1%. The worker share of output is chosen to be $\beta = 0.9$ such that the profit share of the firm is 10%. Finally we set the unemployment benefit to be $b = 0.3\%$ and show the results with respect to some alternative values.

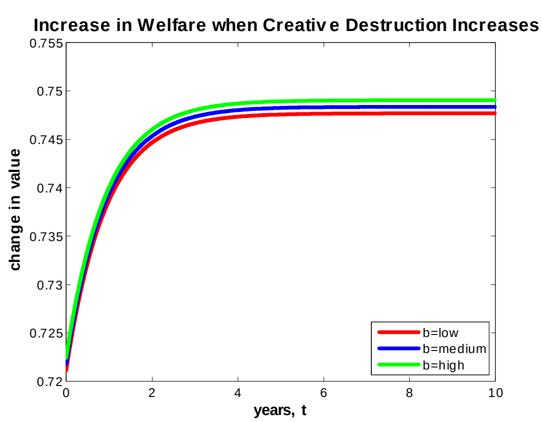
The following figures illustrate this experiment. Until time 0, the economy is at its initial steady state and at $t = 0$, the rate of creative destruction increases from x_{low} to x_{hgh}. The left figure shows the evolution of the unemployment rate and the right figure shows the effect on equilibrium welfare. For expositional purposes, we plot the welfare after normalizing it by the aggregate output every period.

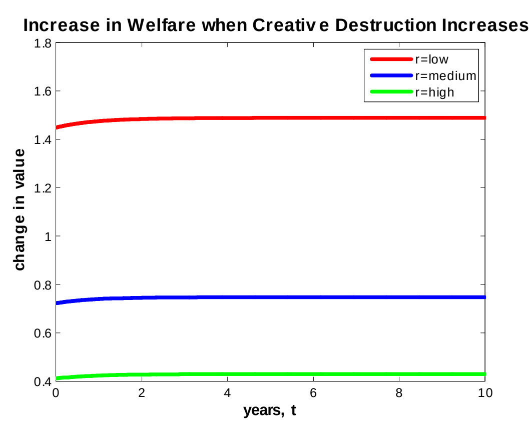




After the change, the unemployment rate starts to evolve towards its new level according to the law of motion in (12) . What we see is that the convergence is quick and the economy assumes its new steady state value almost after 6 years. The impact on welfare is slightly different. After the sudden change, the welfare function features a sudden jump at time 0 and then starts to evolve towards the new steady state. The big change in welfare occurs at the time of the change in creative destruction and the remaining portion of the transition has much lower impact on the new level of welfare.

The following figures illustrate the change in welfare, i.e. $\Delta W_t = W_{t>0} - W_{t=0}$ for different values of the discount rate ρ and unemployment benefit b.





These results confirm the steady state results in Proposition 1. The left figure shows that the increase in welfare after the increase in entry is higher, the higher is the unemployment benefit.

Similarly, the increase in welfare is higher, the lower is the discount rate. Hence, the steady state results of the benchmark model are confirmed in this simple numerical exercise even when the transitions are taken into account.

3.2 Risk aversion

We now consider the case where individuals are risk averse with instantaneous preferences $U = \ln C$, and compute the steady-state value functions under this assumption. Recall that the individuals discount the future at the rate ρ. Then the value functions for currently employed and unemployed individuals satisfy the asset equations:

$$\begin{aligned} \rho E - \dot{E} &= \ln(\beta\pi Y) + x(U - E) \\ \rho U - \dot{U} &= \ln(bY) + (m(u,v)/u)(E - U) \end{aligned}$$

From this we get:

Lemma 2 *The value functions take the following form*

$$\begin{aligned} E &= \frac{1}{\rho}\left[\ln(\beta\pi) - \frac{x\ln(\beta\pi/b)}{1+x+\rho} + \frac{g}{\rho} + \ln Y\right] \quad \textit{and} \\ U &= \frac{1}{\rho}\left[\ln(b) + \frac{\ln(\beta\pi/b)}{1+x+\rho} + \frac{g}{\rho} + \ln Y\right] \end{aligned}$$

Proof. See Appendix. ■

Using the above expressions for E and U, well-being can be shown to be equal to:

$$W^{u(c)=\ln c} = \frac{1}{\rho}\left[\frac{x}{1+x}\ln(b) + \frac{1}{1+x}\ln(\beta\pi)\right] + \frac{1}{\rho}\left[\frac{g}{\rho} + \ln Y\right]$$

This expression shows that for given growth rate well-being is affected more negatively by creative destruction than in the risk neutrality case: since here the agent is risk averse, more asymmetry between the returns when employed ($\beta\pi$) and when unemployed (b) lowers her well-being by more.

The net effect of creative destruction on well-being will ultimately depend upon the size of the asymmetry and upon the magnitude of the growth effect: in particular, if the unemployment benefit is too low relative to the wage rate, or if the growth effect is too small, then the overall effect of creative destruction on well-being is negative. More precisely:

Proposition 2 *When agents are risk averse with $U = \ln C$ and the unemployment benefit is sufficiently low, namely $b < \frac{\beta\pi}{\lambda^{1/\rho}}$, then a higher turnover rate x decreases life satisfaction W :*

$$\frac{\partial W^{u(c)=\ln c}}{\partial x} < 0.$$

This proposition states that, when agents are risk averse, job loss is perceived more detrimentally than when they are risk neutral. Consequently, there is a range of unemployment benefits for which higher turnover reduces life satisfaction for risk averse individuals with log preferences whereas it would increase life satisfaction for risk-neutral individuals:

$$\beta\pi\left[1-\frac{\ln\lambda}{\rho}\right]<b<\frac{\beta\pi}{\lambda^{1/\rho}}$$

Finally, moving continuously from the baseline case where individuals are risk-neutral towards the risk-averse case where individuals have log preferences, makes the effect of creative destruction on life satisfaction become increasingly less positive (or increasingly more negative).[12]

3.3 Endogeneizing the turnover rate

In this section, we endogeneize the turnover rate x. To this end, we first solve for the value function of posting a vacancy (V) and a filled vacancy (P) that is currently producing. If the cost of posting a vacancy is cY, which we think as the registration fee that has to be paid to the government, then we can write the value of a vacancy as

$$rV-\dot{V}=-cY+\frac{m}{v}\left[P-V\right].$$

Note that a vacancy is filled at the rate $\frac{m}{v}$. The value of a filled vacancy is

$$rP-\dot{P}=\pi Y+x\left[0-P\right]$$

In steady state we get the following values

$$P=\frac{\pi Y}{r-g+x} \tag{13}$$

and

$$V=\frac{Y}{r-g+1}\left[-c+\frac{\pi}{r-g+x}\right]. \tag{14}$$

Now we are ready to introduce free entry. There is a mass of outsiders enter at the flow of innovation x. Then the free entry condition is simply equates the value of vacancy to 0:

$$V=0. \tag{15}$$

[12] More formally, if

$$W(x,\varepsilon)=(1-\varepsilon)W^{u(c)=c}(x)+\varepsilon W^{u(c)=\ln c}(x),$$

where

$$W^{u(c)=c}=\frac{Y}{r-g}\left[\beta\pi-\frac{xB}{1+x}\right]$$

is the equilibrium life satisfaction when individuals are risk neutral with $u(c)=c$ (see above), the variable ε reflects the degree of risk aversion, and we have

$$\frac{\partial^2 W}{\partial x\partial\varepsilon}<0.$$

Then using (14) and (15) we find the entry rate as

$$x = \frac{\pi}{c} - r + g.$$

This equation is intuitive. The entry rate increases in flow profits and decreases in the cost of vacancy. Moreover, it increases in the equilibrium growth rate due to *capitalization* effect (it indicates that any formed business today will have higher future growth opportunities).

Recall that $r = \rho$ from the household maximization and $g = \frac{x}{1+x} \ln \lambda$. Hence equation (15) is reexpressed as

$$x = \frac{\pi}{c} - \rho + \frac{x}{1+x} \ln \lambda.$$

To ensure the existence of a unique equilibrium, it is sufficient to have the following assumption.

Assumption: The discounted sum of future profits is greater than cost of posting vacancy

$$\frac{\pi}{\rho} > c.$$

Then the entry rate is implicitly determined as

$$x = \Pi + \frac{x}{1+x} \ln \lambda$$

where $\Pi \equiv \frac{\pi}{c} - \rho$. Hence

$$x = \frac{-(1 - \Pi - \ln \lambda) + \sqrt{(1 - \Pi - \ln \lambda)^2 + 4\Pi}}{2}. \tag{16}$$

Proposition 3 *There exists a unique entry rate x. Moreover, the equilibrium entry rate is increasing in profits π and innovation size λ and decreasing in the cost of posting vacancy c and discount rate ρ*

$$\frac{\partial x}{\partial \pi}, \frac{\partial x}{\partial \lambda} > 0 \;\; \frac{\partial x}{\partial \rho}, \frac{\partial x}{\partial c} < 0.$$

Finally, we close the model by specifying the budget constraint of the government that has to finance the unemployment benefit bY_t. One can think of the vacancy cost as the tax (or registration fee) that has to be paid to the government to enter the economy and actively search for a worker. To keep the model tractable, we can assume that this fee paid to the government is equal to the unemployment benefit such that

$$c = b$$

which would also ensure that budget constraint of the government is satisfied period by period.[13] An intuitive implication of this assumption would be that if the unemployment benefits are higher, this would discourage entry into vacancy due to lower returns from doing business.

[13] If revenues were generated through other sources, in particular through taxing incumbents , then revenues might be larger than the benefits that are distributed in the economy. In that case, we would need to assume that the government burns the additional surplus or gives it back to individuals, which then would translate into higher *effective* benefits. Since such an equilibrium feedback (or more generally the optimal policy to raise government revenue) is not the focus of our analysis, we simply assume $c = b$.

Now we can summarize the balanced growth path equilibrium of this economy as follows.

Definition (Balanced Growth Path Equilibrium): In the above economy with endogenous entry, a balanced growth path equilibrium is defined as a tuple $\{p_j, y_j, x, u, U, E, P, V, r, g\}$ such that: (i) p_{jt} and y_{jt} maximize the monopoly profit of the incumbents (3), (ii) x solves the free-entry condition (16), (iii) unemployment rate is determined by the flow equation (8), (iv) the value functions $U, E, P,$ and V satisfy the continuous-time Hamilton-Jacobi-Bellman equations (10), (11), (13), and (15), (v) interest rate is determined through the household maximization (1), and (vi) the growth rate is consistent with the equilibrium entry rate (9).

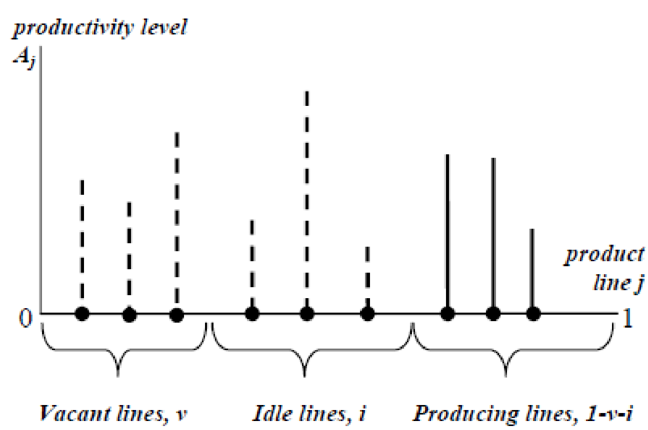
Our model solution delivers the following result.

Proposition 4 *The balanced growth path equilibrium of the model with free-entry exists and it is unique.*

3.4 Exogenous job destruction

In our baseline model, the only source of job destruction, as well as job creation, was new entry. However, as it is common in the literature, one can consider an additional exogenous job destruction rate which captures the all other sources of exit other than the creative destruction. To capture this, assume that each job is destroyed at the rate ϕ. Upon this shock, worker joins the unemployment pool and the product line becomes idle. When a new entrant comes into this product line at the rate x, it first posts a vacancy in which case then the same product line moves from "idle" into "vacant" state. Finally, when a vacant product line finds a suitable worker, the product line enter into "production state". Similarly, if a new entrant enters into a actively producing line, then the worker joins the unemployment pool and the new firm posts a vacancy as in the previous model.

In steady state, there will be some product lines that are vacant (of measure v), some will be idle (of measure i) and the rest will be producing. We illustrate this economy in the following figure:



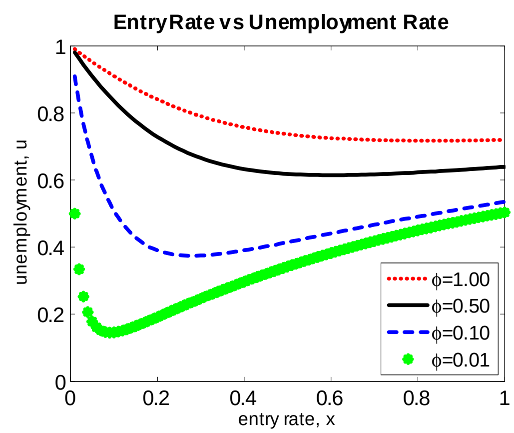
In this new model, Now we can express the flow equations into vacancy and idle product lines as

$$(1-v)\,x = m, \text{ and } (1-v-i)\,\phi = ix.$$

For analytical tractability, assume $\alpha = 0.5$. Then the unemployment rate is simply

$$u = 1 - \frac{(\Psi+1) - \sqrt{(\Psi+1)^2 - 4\left[\Psi - \Psi^2 x^2\right]}}{2\left[\Psi - \Psi^2 x^2\right]}$$

where $\Psi \equiv 1 + \phi/x$. This expression already shows the possible non-linear relationship between unemployment rate and the entry rate. In this current model, jobs are destroyed both by creative destruction at the rate x and also by the exogenous shock ϕ. The only source of job creation is job posting that happens though new entrants. Hence, one would expect that when ϕ is large, then the main role of entry will be job creation whereas when ϕ is very low, then we are back to the previous model and entry will mainly create unemployment. This is evident in the following figure that plots the unemployment rate against the entry rate for various values of the exogenous destruction rate $\phi \in \{1, 0.5, 0.1, 0.01\}$. As expected, as $\phi \to 0$, entry and unemployment becomes positively correlated whereas when ϕ is very high, then the relationship is negative.



4 Data and empirical strategy

4.1 Data

The data on job turnover and creative destruction come from the Business Dynamics Statistics, which provides, at the metropolitan (CBSA) level, information on job creation and destruction rates as well as on the entry and exit rates of establishments. These rates are computed from the whole universe of firms as described in the Census Longitudinal Business Database. From that database we construct three measures of creative destruction, following Davis, Haltiwanger and Schuh (1996). The first one is the “firm turnover rate", i.e. the sum of the establishment entry rate and the establishment exit rate. The second one is the “job turnover rate", i.e. the sum of the job creation rate and the job destruction rate. The third one is computed as the job creation rate from establishment births plus the job destruction rate from establishment deaths. These measures are highly correlated (with correlations between 0.8 and 0.9), and they yield very similar results, so in the paper we only report results for establishment turnover. We also consider a "predicted measure" (or Bartik-type measure) of creative destruction which is constructed as follows: (i) first, for each MSA, we derive the sectoral distribution of firms; (ii) second, we compute the nationwide measures of creative destruction for each sector; (iii) for each MSA, the current predicted level of CD is computed by taking a weighted average of these countrywide industry-based CD measures but with weights determined by the current sectoral structure in the MSA.

The data on subjective well-being come from the Gallup Healthways Wellbeing Index, which collects data on 1,000 randomly selected Americans each day through phone interviews. The period covered is 2008-2011. To our knowledge there is no dataset on subjective well-being with a larger sample size.[14] To proxy for subjective well-being, our preferred measure is the *anticipated* Cantril ladder of life. The Cantril ladder of life reflects individuals' overall evaluation of their lives, and it is computed for each individual respondent from asking the following question: "Please imagine a ladder with steps numbered from zero at the bottom to 10 at the top; the top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you; on which step of the ladder would you say you personally feel you stand at this time?"; the anticipated Cantril ladder is then constructed based on the additional question "which level of the ladder do you anticipate to achieve in five years?" and we refer to it as "anticipated ladder" in the tables below. The *anticipated* Cantril ladder is a good empirical proxy for the theoretical well-being indicator W analyzed in the previous section, as we recall that W is the ex ante expected valuation of an individual who does not know yet whether she will start being employed or unemployed. Yet we will also show the effects of creative destruction on the *current* Cantril ladder, which we will refer to as the "current ladder" in the tables below. Another measure of well-being we consider at the end, and which is more directly associated with the risk induced by creative destruction, is the "worry" measure. The corresponding "worry" variable in the Gallup takes values 0 or 1, according to an individual's answer to the question: "Did you experience some worry yesterday?".

4.2 Regression equations

We first present results at the state and MSA levels, then we take advantage of our micro data and present individual level results. Our baseline regressions are OLS.

The specification at the state level is:

$$SWB_{s,t} = \beta Y_{s,t} + \gamma U_{s,t} + \delta CD_{s,t} + \varepsilon T_t + \eta X_{s,t} + u_{s,t},$$

[14] Only the BRFSS is of comparable size.

where $SWB_{s,t}$ is subjective well-being (measured by the anticipated or current Cantril ladder) averaged for state s in year t; $Y_{s,t}$ is the average of log of income in that same state s in year t; $U_{s,t}$ is the average unemployment rate in state s in year t; $CD_{s,t}$ is the average level of creative destruction in state s in year t; T_t is a year fixed effect; $X_{s,t}$ are state level covariates (including population growth, share of migrations, state average of individual characteristics); and $u_{s,t}$ is the error term. Standard errors are clustered at the state level.

The specification at the MSA level, is exactly the same as the state level one, except that everything varies at the MSA level and that for income we control for both the average MSA level log of income and average state level log of income (the existing literature suggests that for income it is important to consider different levels of aggregation simultaneously, in particular to control for potential relative income effects). Standard errors are clustered at the MSA level.

We then perform these same regressions but splitting our sample according to the generosity of UI benefits in the state. Namely, we split our sample between states with higher than median generosity in unemployment benefits and states with lower than median generosity in unemployment benefits. We define generosity as the maximum weekly unemployment benefit amount: unlike average benefit payments: this is a feature of state set rules, thus unaffected by behavior.

Eventually, we turn to micro level data analysis, where we control for the individual characteristics. The corresponding baseline regression equation can be written as:

$$SWB_{i,m,s,t} = \alpha Y_{i,s,t} + \beta Y_{m,t} + \gamma Y_{s,t} + \delta U_{m,t} + \varepsilon CD_{m,t} + \eta T_t + \lambda X_{m,t} + \mu Z_{i,t} + u_{i,m,s,t}, \tag{17}$$

where $SWB_{i,s,t}$ is the subjective well-being (measured by the anticipated or current Cantril ladder) of individual i in MSA m in state s in year $t; Y_{i,m,s,t}$ is the log of income of that same individual; $Y_{m,t}$ is the average log of income in MSA m in year t; $Y_{s,t}$ is the average log of income in state s in year t; $U_{m,t}$ is the unemployment rate in MSA m in year t; $CD_{m,t}$ is the level of creative destruction in MSA m in year $t; T_t$ is a time fixed effect; $X_{m,t}$ are MSA level covariates such as the population growth rate; $Z_{i,t}$ are individual controls including age, gender, race, education (less than high school, high school degree, technical degree, some college, college degree, more than college degree), religiosity (based on individuals' answers to the question: "Is religion an important part of your daily life?") and smoking (according to individuals' answers to the question: "Do you smoke?"); and $u_{i,s,t}$ is the error term. Standard errors are clustered at the MSA level.

When using the micro data, we also look at whether the effect of creative destruction might differ according to individual characteristics. So we look at the interaction with age, gender, race, education (at least a college degree v. no college degree), religiosity, marital status and smoking.

5 Results

5.1 Baseline results at the state-level, MSA level and individual level

Table 2 shows the results from the baseline OLS regression at the state level and Table 3 shows the results from the baseline OLS regression at the MSA level. In both tables, the dependent variable is the anticipated Cantril ladder. In column (1), we use the direct measure of establishment turnover. Column (2) removes the control for unemployment, whereas column (3) adds a control for population inflows (as measured by the share of people who did not live in that state the previous year), columns (4) and (5) add various demographic controls, which are computed as weighted averages of the Gallup micro data. Column (6) shows the results from the specification with all the controls.

$TABLE$ 1, 2 and 3 $HERE$

Our first finding is that creative destruction increases subjective well-being, and significantly so. In terms of significance and magnitude it even outweighs the effect of unemployment and log of income. When we do not control for unemployment (columns (2)), we see that the effect of creative destruction becomes much weaker. This is consistent with the model: when we control for unemployment, we only have the positive effect of creative destruction through growth; whereas when we do not control for unemployment we have the additional unemployment effect of turnover playing in. Indeed as figure 1 shows, creative destruction and unemployment are positively correlated.

$FIGURE$ 1 $HERE$

Using the descriptive statistic table (Table 1) we can try and assess the magnitude of the effects. In particular, moving from a state which is at the 25th percentile in terms of its level of creative destruction (i.e with establishment entry rate + exit rate at 18,6%) to a state at the 75th percentile (i.e with establishment entry rate + exit rate at 22,3%) is associated with an increase in subjective well-being of 0,9% with respect to its mean. As a benchmark, moving from the 75th to the 25th percentile in terms of the unemployment rate (that is, from a 6.4% to a 9.9% unemployment rate) is associated with an increase in the anticipated ladder of 0.5%. In other words, creative destruction has an effect on subjective well-being of the opposite sign of unemployment but almost twice as big in terms of magnitude.

At the MSA level, the results are very similar. Going from an MSA at the 25th percentile in terms of its level of creative destruction (i.e with establishment entry rate + exit rate at 18,3%) to a MSA at the 75th percentile (i.e with establishment entry rate + exit rate at 22,8%), is associated with an increase in the anticipated ladder of 1,3% with respect to its mean. As a benchmark, going from the 75th to the 25th percentile in terms of the unemployment rate is associated with an increase in subjective well-being of 0.5%.

In Table 4, we perform the individual-level regressions using our micro data and find qualitatively similar results. One difference is that the R-squares are now much lower, which in turn is due to the variance in life satisfaction across individuals being much higher than the variance between mean life satisfactions across states or across MSAs.

TABLE 4 *HERE*

In Table 5, we repeat the same exercise as in Tables 2, 3 and 4 but now looking at the effects of creative destruction on the current ladder. We find very similar results but with effects of slightly smaller magnitude.

TABLE 5 *HERE*

In Table 6 we repeat the baseline regression exercises of Tables 2 and 3, but splitting the sample between states above median with regard to the generosity of unemployment benefits and states below median. We proxy the generosity of states' unemployment insurance with their maximum weekly benefit amount. Not surprisingly, we find a more positive effect of creative destruction on the anticipated ladder and also on the current ladder in states with more generous unemployment benefits. We also check the effect of a continuous interaction between creative destruction and above median maximum benefits and find a significant positive coefficient on future and current ladder.

TABLE 6 *HERE*

To address potential endogeneity issues, in Table 7 we perform an IV regression where we instrument the "establishment turnover" measure of creative destruction by a Bartik-type measure of "predicted" creative destruction: namely, the weighted average of sectoral national CD rates where the weights correspond to MSA-level sectoral compositions in 2008.[15] Again, we find a positive and significant effect of creative destruction on the anticipated ladder (or future ladder). Moreover, the first stage regression presented in table 7A, shows that the instrument passes the F-test. What makes us believe that our predicted CD measure captures a causal effect of creative destruction on life satisfaction, is that we find no significant correlation between the sectoral composition used to construct our instrument and subjective well-being measured by future ladder. In other words, the

[15] More formally, our IV can be expressed as

$$instr_{m,s,t,} = \sum_i \omega_{i,m,s} * CD_{i,USA,t},$$

where $\omega_{i,m,s}$ is the share of sector i in MSA m in state s in 2008. The identifying assumption is that the 2008 sectoral composition in any MSA has no effect on subjective well-being in subsequent periods.

effects we find in Table 7B, both in the reduced form regression of future ladder on the predicted CD measure and in the IV regression, are not driven by MSA-level variations in sectoral composition but rather by variations in sectoral national CD rates that are uncorrelated with possible MSA-level unobservables.

TABLE 7 *HERE*

5.2 Interactions with individual characteristics

Table 8 looks at how the interaction between creative destruction and age affects subjective well-being. A first finding is that the effect of CD on well-being appears to be more positive for the young than for the old. This is particularly true if we look at the current ladder: there we see that for individuals above 55, creative destruction has a significantly negative effect on the ladder, whereas for those aged between 20 and 55, the coefficient of establishment turnover on life satisfaction is significantly positive. If we then split the sample according to the median age, that is 48, we do find a positive coefficient on the interaction term between creative destruction and the "below 48" dummy, which again suggests that establishment turnover has a more positive impact on younger individuals. Now, moving to the anticipated ladder, the results are less clear-cut when looking at how CD pays out for discrete age brackets, and they even tend to get reversed when looking at the continuous interaction between age and CD. A simple explanation for this, is linked to the fact -not captured by our model- that individuals retire beyond a certain age. But once she has retired, the individual enjoys the positive effect of CD working through growth, without enduring the negative effect of CD working through unemployment. This additional effect is obviously bigger on the anticipated ladder than on the current ladder, and it counteracts the negative effect of age pointed out in Section 2.

TABLE 8 *HERE*

Table 9 splits our Gallup sample between individuals with less than a college degree (the low-educated) and those with at least one college degree (the high-educated). Somewhat surprisingly, we find that establishment CD has a more positive effect on the ladder for low-educated than for high-educated individuals. In terms of our model, this could be explained by a higher (private) disutility of being currently unemployed for the highly educated individuals. It could also reflect differences in matching probabilities between high- and low-educated individuals which the matching technology in our model did not factor in.

TABLE 9 *HERE*

Table 10 splits our Gallup sample between religious and non-religious individuals. We see that creative destruction has a more positive effect on the ladder and on future ladder for non religious individuals than for religious individuals. In terms of our model, this is consistent with the notion that religious individuals tend to be more risk averse than non religious individuals.

TABLE 10 *HERE*

Table 11 splits our Gallup sample between smokers and non smokers. We see that establishment turnover has a more positive effect on the ladder and future ladder for smokers than for non smokers. One explanation might be that smoking helps individuals escape from the negative risk-enhancing effects of CD. Another explanation might be that smokers do not perceive risks the same way as non-smokers do.

TABLE 11 *HERE*

Table 12 splits our sample between men and women. We do not see any significant gender difference when it comes to the effects of CD on ladder but there seems to be a more positive effect of CD on future ladder for men than for women.

TABLE 12 *HERE*

Table 13 interacts CD with ethnicity. It shows that creative destruction has a positive effect on life satisfaction only for the non-hispanic white.

TABLE 13 *HERE*

Table 14 interacts CD with marital status. It shows that creative destruction has a more positive effect on life satisfaction for people without a partner or a spouse. This in turn might partly reflect result from mobility costs being lower for the unmarried.

TABLE 14 *HERE*

5.3 The effect of creative destruction on *worry*

The comparison between the effects of creative destruction on ladder and the future ladder, already suggested that more creative destruction increases subjective well-being primarily because it improves individuals' future income prospects, but that this income-led effect is mitigated by a counteracting risk-led effect. This intuition is reinforced by the interaction results, in particular from the effect of creative destruction on well-being being more positive for individuals in states with more generous unemployment benefits. To check this intuition further, we now consider another measure of subjective well-being, which more directly captures the risk-led effect: namely, the "worry" measure. The "worry" variable in the Gallup takes values 0 or 1, according to an individual's answer to the question: "Did you experience some worry yesterday?". Table 15 regresses this worry measure on our measures of the establishment turnover measure of creative destruction, at state, MSA and individual levels. We find an unambiguously positive and significant effect of creative destruction on worry. Moreover, if we look at the magnitude of this effect: the MSA level regression suggests that moving from an MSA at the 25th percentile in terms of CD to an MSA at the 75th percentile is associated with a 2.9% increase in worry with respect with the baseline mean if we control for the unemployment rate, and with a 3.3% increase in worry if we do not control for the unemployment rate (which confirms the further effect of unemployment on individuals' perceived risk).[16]

TABLE 15 *HERE*

6 Conclusion

In this paper we have analyzed the relationship between turnover-driven growth and subjective well-being, using MSA level turnover data from the Longitudinal Business Database and subjective well-being data from Gallup. We found that the effect of creative destruction on ladder measures of subjective well-being is unambiguously positive if we control for MSA-level unemployment, less so if we do not. Moreover, we found that creative destruction has a more positive effect on the ladder in states with more generous unemployment benefits. We also found that the effect of creative destruction on the ladder tends to be more positive for young individuals, for the non-religious, for the smokers, for the less educated, and for the non-hispanic white. Finally, we found that the effect of creative destruction on the "worry" measure of well-being is negative. This, together with the positive effect of creative destruction on the ladder and particularly on the future ladder, suggests that individuals perceive both, the positive income growth and the negative risk impacts of creative destruction on well-being.

The analysis in this paper can be extended in several directions. A first avenue would be to compare more systematically the determinants of (per capita) GDP growth with the determinants of life satisfaction. A second extension would be to look at other individual characteristics or characteristics of labor market (training systems, availability of vocational education,..) which should also impact on the effects of turnover on subjective well-being. A third avenue would be to gather more data in order to perform event studies: in particular one would like to be able to track a same individual through successive periods of employment and unemployment and look how the

[16] The magnitudes are similar when looking at the individual-level regression part of Table 14: moving from the 25th to the 75th percentile in terms of CD is associated with a 2.2% increase in *worry* with respect to the baseline mean when controlling for the unemployment rate in the MSA.

well-being indicators for that individual evolve over time as this individual moves back and forth between employment and unemployment. These and other extensions of the analysis in this paper are left for future research.

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7 Appendix

Proof. [Proof of Lemma 1] The output in this economy is

$$\begin{aligned} \ln Y_t &= \int_{j\in\mathcal{J}} \ln A_{jt} dj. \\ &\equiv (1-u)\ln \bar{A}_t \end{aligned}$$

Then

$$\begin{aligned}
\ln Y_{t+\Delta t} &= \int_{\mathcal{J}} \left[x\Delta t \times 0 + (1 - x\Delta t)\ln A_{jt}\right] dj + \int_{\mathcal{J}'} \left[\frac{m}{v}\Delta t \ln(1+\lambda)\bar{A}_t + \left(1 - \frac{m}{v}\Delta t\right) \times 0\right] dj \\
&= (1 - x\Delta t)(1-u)\ln \bar{A}_t + u\frac{m}{v}\Delta t \ln(1+\lambda)\bar{A}_t \\
&= [1-u]\ln \bar{A}_t + m\Delta t \ln(1+\lambda)
\end{aligned}$$

Hence

$$g = \lim_{\Delta t \to 0} \frac{\ln Y_{t+\Delta t} - \ln Y_t}{\Delta t} = m \ln(1+\lambda)$$

■

Table 1 – Summary statistics

State level

	Mean	Std dev	P1	P5	P25	P50	P75	P90	P95	P99
Anticipated ladder	7.76	0.14	7.04	7.51	7.67	7.75	7.85	7.93	7.95	8.13
Current ladder	6.83	0.19	6.32	6.51	6.72	6.87	6.97	7.04	7.08	7.11
Worry	0.31	0.03	0.24	0.26	0.30	0.32	0.33	0.34	0.35	0.37
Average log of income	8.20	0.11	7.99	8.03	8.11	8.19	8.27	8.32	8.36	8.59
Unemployment Rate	0.083	0.022	0.037	0.049	0.065	0.083	0.099	0.115	0.124	0.132
Establishment CD	0.207	0.027	0.163	0.172	0.186	0.205	0.223	0.240	0.264	0.273
Predicted Establishment CD	0.141	0.007	0.128	0.130	0.136	0.140	0.146	0.151	0.152	0.158
Population growth	0.04	0.1	-0.003	0	0.005	0.01	0.015	0.07	0.111	0.396

CBSA Level

	Mean	Std dev	P1	P5	P25	P50	P75	P90	P95	P99
Anticipated ladder	7.76	0.22	7.06	7.34	7.64	7.79	7.91	7.97	8.08	8.17
Current ladder	6.83	0.22	6.24	6.44	6.71	6.87	6.98	7.08	7.13	7.28
Worry	0.32	0.04	0.21	0.24	0.29	0.32	0.34	0.37	0.39	0.43
MSA log of income	8.20	0.16	7.77	7.93	8.10	8.20	8.30	8.38	8.45	8.59
State log of income	8.20	0.11	7.99	8.03	8.11	8.19	8.27	8.32	8.36	8.59
Unemployment Rate	0.083	0.025	0.037	0.048	0.064	0.083	0.098	0.114	0.126	0.152
Establishment CD	0.207	0.032	0.146	0.16	0.183	0.206	0.228	0.248	0.259	0.296
Predicted Establishment CD	0.141	0.009	0.125	0.128	0.134	0.141	0.147	0.153	0.156	0.168
Population growth	0.04	0.16	-0.008	-0.002	0.001	0.007	0.015	0.02	0.149	1.05

Table 2 – State-level results

	Anticipated ladder					
	(1)	(2)	(3)	(4)	(5)	(6)
Average log of income	0.364***	0.411***	0.185*	0.121	0.0500	-0.120
	(0.0733)	(0.0701)	(0.110)	(0.0945)	(0.106)	(0.148)
Unemployment Rate	-1.084**		-0.800	-0.781**	-0.711**	-0.497
	(0.539)		(0.844)	(0.345)	(0.345)	(0.477)
Establishment Creative destruction	1.917***	1.638***	1.496***	1.137***	1.142***	0.617**
	(0.314)	(0.284)	(0.518)	(0.185)	(0.206)	(0.300)
Population growth	0.141*	0.0999	0.173**	-0.0384	-0.0328	-0.0109
	(0.0805)	(0.0785)	(0.0859)	(0.0416)	(0.0415)	(0.0414)
Share of in-migrants			1.625			0.728
			(1.125)			(0.624)
Age				-0.0395***	-0.0399***	-0.0482***
				(0.00364)	(0.00380)	(0.00528)
At least college				0.371*	0.445**	0.559*
				(0.191)	(0.194)	(0.286)
Female					0.586	0.453
					(0.385)	(0.557)
Religious				0.0700	-0.0519	-0.0557
				(0.114)	(0.139)	(0.190)
Married or partner					0.386	0.256
					(0.256)	(0.334)
Hispanic				0.188***	0.206***	0.119
				(0.0623)	(0.0672)	(0.0947)
Black				0.778***	0.895***	0.753***
				(0.0940)	(0.134)	(0.174)
Asian				0.657***	0.766***	0.745***
				(0.208)	(0.214)	(0.282)
Observations	204	204	102	204	204	102
R-squared	0.816	0.760	0.243	0.871	0.874	0.851

Table 3 – CBSA-level results

Variables	Anticipated ladder					
	(1)	(2)	(3)	(4)	(5)	(6)
CBSA average log of income	0.469***	0.533***	0.441***	0.251***	0.250***	0.212***
	(0.0427)	(0.0399)	(0.0648)	(0.0393)	(0.0425)	(0.0631)
State average log of income	-0.106*	-0.128**	-0.235***	-0.0738*	-0.0816*	-0.178**
	(0.0583)	(0.0583)	(0.0903)	(0.0424)	(0.0424)	(0.0696)
Unemployment Rate	-1.074***		-0.862**	-0.708***	-0.700***	-0.384
	(0.262)		(0.375)	(0.201)	(0.201)	(0.281)
Establishment Creative destruction	2.166***	1.910***	1.928***	0.875***	0.937***	0.450**
	(0.162)	(0.150)	(0.248)	(0.123)	(0.126)	(0.195)
Population growth	0.104***	0.0947***	0.118***	-0.0419**	-0.0400*	-0.0226
	(0.0311)	(0.0312)	(0.0320)	(0.0212)	(0.0212)	(0.0218)
Share of in-migrants			1.274*			0.922*
			(0.653)			(0.483)
Age				-0.0371***	-0.0379***	-0.0429***
				(0.00171)	(0.00173)	(0.00246)
At least college				0.307***	0.310***	0.364***
				(0.0816)	(0.0827)	(0.122)
Female					0.444***	0.366**
					(0.129)	(0.182)
Religious				0.0544	0.0218	0.000510
				(0.0546)	(0.0612)	(0.0872)
Married or partner					0.0736	0.0672
					(0.107)	(0.151)
Hispanic				0.281***	0.276***	0.225***
				(0.0367)	(0.0371)	(0.0531)
Black				0.835***	0.848***	0.738***
				(0.0455)	(0.0567)	(0.0771)
Asian				0.333**	0.371***	0.294
				(0.139)	(0.142)	(0.191)
Observations	1,448	1,448	725	1,448	1,448	725
R-squared	0.374	0.367	0.256	0.721	0.723	0.684

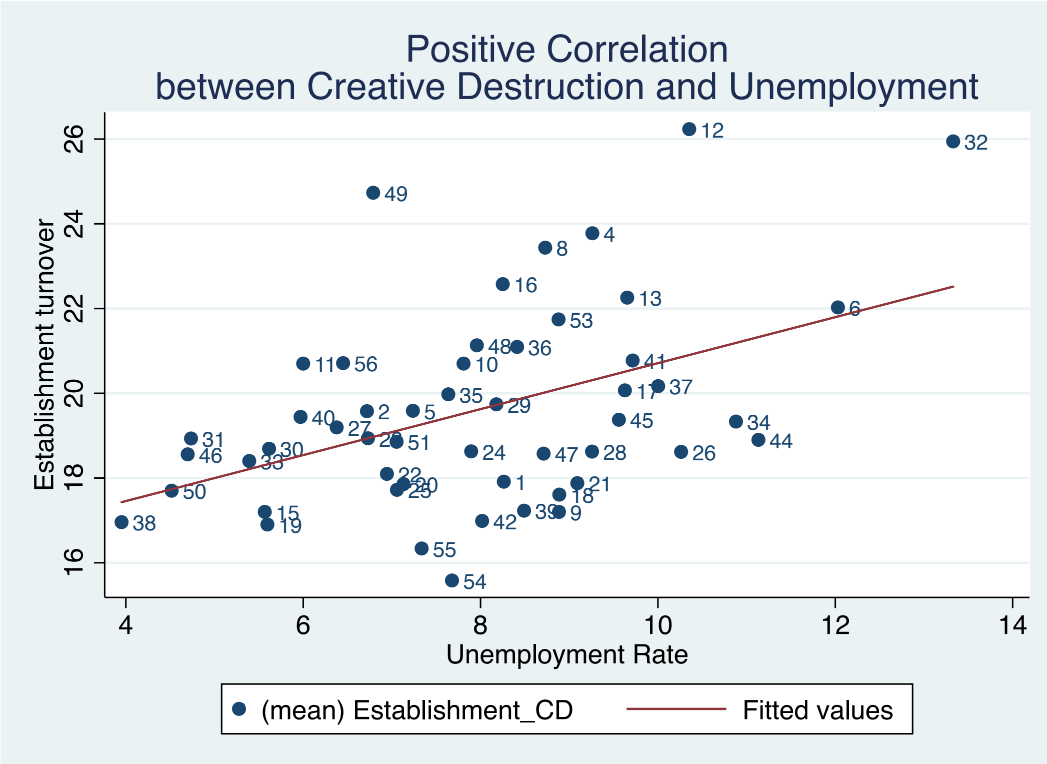
Table 4 - Individual level – whole sample

Variables	Anticipated ladder	
	(1)	(2)
lny	0.246***	0.246***
	(0.00323)	(0.00323)
mlny	0.0529**	0.0610***
	(0.0242)	(0.0227)
slny	-0.0265	-0.0287
	(0.0325)	(0.0325)
Establishment_CD	1.198***	1.165***
	(0.0913)	(0.0847)
Unemployment_Rate	-0.145	
	(0.151)	
married_or_partner	0.0418***	0.0419***
	(0.00570)	(0.00570)
age	-0.0378***	-0.0378***
	(0.000165)	(0.000165)
hispanic	0.0778***	0.0774***
	(0.00937)	(0.00936)
black	0.721***	0.721***
	(0.00807)	(0.00807)
asian	-0.196***	-0.196***
	(0.0184)	(0.0184)
some_college	0.458***	0.458***
	(0.0109)	(0.0109)
college	0.550***	0.550***
	(0.0116)	(0.0116)
postcollege	0.678***	0.678***
	(0.0121)	(0.0121)
high_school	0.311***	0.311***
	(0.0105)	(0.0105)
technical	0.327***	0.328***
	(0.0140)	(0.0140)
female	0.253***	0.253***
	(0.00522)	(0.00522)
smoker	-0.111***	-0.111***
	(0.00660)	(0.00660)
rel	0.136***	0.136***
	(0.00555)	(0.00554)
Popgrowth	-0.000793	-0.00212
	(0.0162)	(0.0162)
Observations	613,324	613,324
R-squared	0.128	0.128

Table 5 –Current ladder

	STATE LEVEL			CBSA LEVEL			Individual level		
Individual log income							0.418***	0.418***	0.416***
							(0.00298)	(0.00298)	(0.00298)
CBSA avge log income				0.186***	0.214***	0.336***	-0.238***	-0.230***	-0.0828***
				(0.0330)	(0.0306)	(0.0323)	(0.0222)	(0.0208)	(0.0208)
State avge Log income	0.207***	0.250***	0.345***	0.0560	0.0496	0.00650	0.0357	0.0357	-0.00708
	(0.0565)	(0.0531)	(0.0610)	(0.0451)	(0.0442)	(0.0472)	(0.0300)	(0.0298)	(0.0299)
Unemployment Rate	-3.197***	-3.254***		-2.507***	-2.568***		-2.764***	-2.804***	
	(0.416)	(0.383)		(0.202)	(0.193)		(0.138)	(0.133)	
Establishment CD	0.979***		0.157	0.513***		-0.0871	0.170**		-0.452***
	(0.242)		(0.247)	(0.125)		(0.121)	(0.0841)		(0.0781)
Population growth	0.0766	0.0671	-0.0432	0.00826	0.00556	-0.0141	0.118***	0.118***	0.119***
	(0.0621)	(0.0596)	(0.0684)	(0.0241)	(0.0238)	(0.0252)	(0.00525)	(0.00525)	(0.00525)
married_or_partner	4.854***	3.983***	3.707***	4.624***	4.138***	3.780***	0.000866***	0.000858***	0.000749***
	(0.465)	(0.456)	(0.501)	(0.282)	(0.284)	(0.288)	(0.000151)	(0.000151)	(0.000151)
age							0.181***	0.177***	0.173***
							(0.00846)	(0.00850)	(0.00845)
hispanic							0.0763***	0.0763***	0.0748***
							(0.00746)	(0.00746)	(0.00747)
black							-0.0448***	-0.0459***	-0.0557***
							(0.0171)	(0.0171)	(0.0171)
asian							0.0584***	0.0578***	0.0598***
							(0.00982)	(0.00982)	(0.00982)
some_college							0.210***	0.210***	0.213***
							(0.0104)	(0.0104)	(0.0104)
college							0.360***	0.360***	0.364***
							(0.0110)	(0.0110)	(0.0110)
postcollege							0.0501***	0.0502***	0.0514***
							(0.00938)	(0.00938)	(0.00938)
high_school							-0.0958***	-0.0959***	-0.0932***
							(0.0127)	(0.0127)	(0.0127)
technical							0.183***	0.184***	0.183***
							(0.00481)	(0.00481)	(0.00482)
female							-0.544***	-0.544***	-0.544***
							(0.00609)	(0.00609)	(0.00609)
smoker							0.187***	0.187***	0.192***
							(0.00513)	(0.00513)	(0.00513)
rel							-0.0326**	-0.0338**	-0.0578***
							(0.0149)	(0.0149)	(0.0149)
Popgrowth							634,835	634,835	634,835
							0.093	0.093	0.092
Observations	204	204	204	1,448	1,448	1,448	634,835	634,835	634,835
R-squared	0.816	0.830	0.760	0.618	0.627	0.578	0.093	0.093	0.092

Figure 1



Positive Correlation
between Creative Destruction and Unemployment
Establishment turnover
Unemployment Rate
(mean) Establishment_CD
Fitted values

Table 6 – Interaction with unemployment benefits generosity

Table 6A- discrete interactions

Dep. variable	**Anticipated ladder**				**Current ladder**			
Level of analysis	**State**		**CBSA**		**State**		**CBSA**	
UI benefit	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
mlny			0.526***	0.393***			0.279***	0.128**
			(0.0719)	(0.0602)			(0.0558)	(0.0502)
slny	0.465***	0.417***	-0.0712	0.0161	0.151	0.155*	-0.0112	0.0493
	(0.132)	(0.108)	(0.0956)	(0.0952)	(0.104)	(0.0904)	(0.0742)	(0.0794)
Unemployment_Rate	-2.117**	-0.153	-2.104***	-0.746*	-5.529***	-2.373***	-4.005***	-2.200***
	(1.017)	(0.770)	(0.480)	(0.384)	(0.805)	(0.646)	(0.373)	(0.320)
Establishment_CD	1.423***	2.764***	1.570***	3.002***	1.136***	1.359***	0.564***	0.832***
	(0.462)	(0.490)	(0.239)	(0.272)	(0.365)	(0.411)	(0.185)	(0.227)
Popgrowth	0.112	-0.000236	0.120**	0.0610*	0.0520	0.0439	-0.0306	0.00972
	(0.107)	(0.117)	(0.0542)	(0.0345)	(0.0849)	(0.0984)	(0.0421)	(0.0288)
Constant	3.664***	3.614***	3.723***	3.666***	5.411***	5.160***	4.494***	5.069***
	(1.086)	(0.880)	(0.610)	(0.631)	(0.860)	(0.738)	(0.473)	(0.527)
Observations	80	73	625	461	80	73	625	461
R-squared	0.501	0.695	0.350	0.526	0.825	0.881	0.625	0.691

Table 6B – continuous interactions

Dep. variable	**Anticipated ladder**		**Current ladder**	
Level of analysis	**State**	**MSA**	**State**	**MSA**
mlny		0.444***		0.180***
		(0.0472)		(0.0379)
slny	0.478***	0.0265	0.204***	0.0871
	(0.0841)	(0.0661)	(0.0695)	(0.0530)
Unemployment_Rate	-1.328**	-1.359***	-3.997***	-3.019***
	(0.611)	(0.304)	(0.505)	(0.244)
Establishment_CD	1.294***	1.550***	0.863***	0.513***
	(0.380)	(0.214)	(0.314)	(0.172)
Estab CD * UI_high	0.0172***	0.0146***	0.0102*	0.00410
	(0.00636)	(0.00327)	(0.00526)	(0.00263)
UI_high	-0.398***	-0.345***	-0.212*	-0.0914*
	(0.133)	(0.0688)	(0.110)	(0.0552)
Popgrowth	0.0996	0.0878***	0.0803	0.00355
	(0.0767)	(0.0304)	(0.0634)	(0.0244)
Observations	153	1,086	153	1,086
R-squared	0.573	0.417	0.839	0.646

Table 7A – IV-First stage

	State level	MSA level
Variables	Establishment _CD	
Sum (share SIC *CD_sic_nat)	11.44***	5.78***
	(2.84)	(1.08)
R-squared	0.69	0.47
N	204	1451
F-stat	21.8	16.4

Table 7B – IV- Second stage

	State-level			MSA-level		
	OLS	Reduced Form OLS	IV	OLS	Reduced Form OLS	IV
Establishment_CD	1.148***		1.570***	0.994***		2.052***
	(0.235)		(0.430)	(0.156)		(0.476)
Predicted CD		17.96***			11.9***	
		(5.535)			(3.14)	
Lny	0.0437	-0.00672	0.0749	0.219***	0.250***	0.191***
	(0.131)	(0.124)	(0.141)	(0.0457)	(0.0478)	(0.0514)
Unemployment_Rate	-0.737	0.00717	-0.880*	-0.709**	-0.164	-1.190***
	(0.509)	(0.467)	(0.505)	(0.304)	(0.289)	(0.403)
atleast_college	0.452	0.580**	0.391	0.315***	0.418***	0.192
	(0.288)	(0.273)	(0.302)	(0.101)	(0.101)	(0.122)
age	-0.0396***	-0.0376***	-0.0410***	-0.0377***	-0.0376***	-0.0378***
	(0.00445)	(0.00527)	(0.00439)	(0.00203)	(0.00219)	(0.00234)
rel	-0.0560	-0.0136	-0.0170	0.0517	0.116	0.0424
	(0.148)	(0.166)	(0.163)	(0.0768)	(0.0814)	(0.0803)
female	0.596	0.383	0.846*	0.434***	0.273*	0.635***
	(0.453)	(0.388)	(0.439)	(0.145)	(0.149)	(0.160)
married_or_partner	0.407	0.314	0.246	0.0777	-0.0316	-0.0318
	(0.306)	(0.330)	(0.291)	(0.147)	(0.138)	(0.150)
hispanic	0.203**	0.400***	0.131	0.254***	0.388***	0.134
	(0.0797)	(0.0807)	(0.0941)	(0.0552)	(0.0559)	(0.0826)
black	0.899***	0.913***	0.830***	0.842***	0.852***	0.793***
	(0.136)	(0.192)	(0.153)	(0.0746)	(0.0770)	(0.0822)
asian	0.769***	0.776**	0.808***	0.365	0.406	0.476
	(0.270)	(0.297)	(0.235)	(0.357)	(0.309)	(0.355)
Observations	204	204	204	1,451	1,451	1,451
R-squared	0.87	0.87	0.87	0.72	0.72	0.71

Table 8A – Interaction with age – Anticipated ladder

	20-30	30-40	40-50	50-60	Above 60		Above-below median age
lny	0.100***	0.194***	0.267***	0.364***	0.421***	lny	0.253***
	(0.00797)	(0.00810)	(0.00742)	(0.00738)	(0.00725)		(0.00326)
mlny	-0.132**	0.0274	0.0905*	0.0676	0.167***	mlny	0.0320
	(0.0651)	(0.0565)	(0.0549)	(0.0554)	(0.0484)		(0.0245)
slny	0.00758	-0.0268	-0.0720	0.100	-0.0533	slny	-0.0532
	(0.0869)	(0.0753)	(0.0727)	(0.0738)	(0.0669)		(0.0330)
Unemployment_Rate	0.0806	0.0767	-0.218	0.0111	-0.476	Unemployment_Rate	-0.00694***
	(0.407)	(0.351)	(0.344)	(0.341)	(0.302)		(0.00153)
Establishment_CD	1.865***	1.109***	1.323***	1.223***	0.654***	Establishment CD	0.0130***
	(0.250)	(0.214)	(0.207)	(0.209)	(0.178)		(0.00125)
						Below 48	1.074***
							(0.0337)
						Estab CD * Below 48	-0.00352**
							(0.00161)
hispanic	-0.0286	-0.00594	0.132***	0.192***	0.237***	Hispanic	0.204***
	(0.0209)	(0.0189)	(0.0210)	(0.0252)	(0.0268)		(0.00944)
black	0.426***	0.559***	0.775***	0.956***	1.012***	Black	0.780***
	(0.0206)	(0.0180)	(0.0180)	(0.0185)	(0.0185)		(0.00817)
asian	-0.263***	-0.179***	-0.0960**	-0.0902	0.0260	Asian	-0.0677***
	(0.0366)	(0.0351)	(0.0437)	(0.0571)	(0.0646)		(0.0186)
married_or_partner	-0.0285*	-0.0432***	0.0342**	0.0675***	0.129***	married_or_partner	-0.0152***
	(0.0150)	(0.0141)	(0.0136)	(0.0134)	(0.0119)		(0.00575)
some_college	0.470***	0.436***	0.468***	0.606***	0.412***	some_college	0.604***
	(0.0307)	(0.0281)	(0.0280)	(0.0266)	(0.0197)		(0.0110)
college	0.491***	0.482***	0.548***	0.750***	0.601***	college	0.667***
	(0.0325)	(0.0287)	(0.0287)	(0.0277)	(0.0218)		(0.0116)
postcollege	0.523***	0.536***	0.635***	0.857***	0.802***	postcollege	0.759***
	(0.0365)	(0.0301)	(0.0302)	(0.0286)	(0.0215)		(0.0122)
high_school	0.324***	0.282***	0.337***	0.504***	0.238***	high_school	0.382***
	(0.0316)	(0.0275)	(0.0272)	(0.0255)	(0.0177)		(0.0106)
technical	0.339***	0.322***	0.353***	0.451***	0.281***	technical	0.414***
	(0.0403)	(0.0343)	(0.0326)	(0.0327)	(0.0280)		(0.0142)
female	0.256***	0.292***	0.321***	0.280***	0.246***	female	0.236***
	(0.0143)	(0.0121)	(0.0116)	(0.0118)	(0.0111)		(0.00528)
rel	0.161***	0.111***	0.106***	0.193***	0.165***	rel	0.0794***
	(0.0145)	(0.0127)	(0.0123)	(0.0126)	(0.0118)		(0.00558)
Popgrowth	-0.0554	-0.0153	0.0230	-0.0655*	0.0610*	Popgrowth	7.30e-05
	(0.0431)	(0.0363)	(0.0368)	(0.0370)	(0.0348)		(0.000165)
Observations	49,145	81,812	113,187	139,965	222,449	Observations	637,094
R-squared	0.043	0.047	0.054	0.064	0.055	R-squared	0.078

Table 8B- Interaction with age – Current ladder

AGE	20-30	30-40	40-50	50-60	Over 60	20-55	Over 55		Above-below median age
lny	0.238***	0.494***	0.578***	0.605***	0.430***	0.471***	0.508***	lny	0.434***
	(0.00913)	(0.00826)	(0.00698)	(0.00644)	(0.00578)	(0.00404)	(0.00486)		(0.00299)
mlny	-0.196***	-0.325***	-0.312***	-0.352***	-0.187***	-0.289***	-0.238***	mlny	-0.276***
	(0.0742)	(0.0573)	(0.0515)	(0.0483)	(0.0384)	(0.0304)	(0.0333)		(0.0223)
slny	0.0527	0.0117	0.0441	0.0268	-0.0446	0.0498	-0.0736	slny	0.0310
	(0.0994)	(0.0766)	(0.0685)	(0.0646)	(0.0534)	(0.0405)	(0.0458)		(0.0301)
Unemployment_Rate	-2.26***	-2.35***	-3.27***	-3.57***	-2.32***	-2.93***	-2.64***	Unemployment_Rate	-2.95***
	(0.465)	(0.356)	(0.323)	(0.298)	(0.240)	(0.190)	(0.207)		(0.00139)
Establishment_CD	0.634**	0.447**	-0.0310	-0.0084	-0.0082	0.299**	-0.254**	Establishment CD	0.182
	(0.286)	(0.219)	(0.196)	(0.183)	(0.143)	(0.116)	(0.124)		(0.113)
								Below 48	-0.105***
									(0.0308)
Age						-0.0199***	0.0385***		
						(0.000346)	(0.000425)		
								Estab CD * Below 48	0.292**
									(0.147)
Hispanic	0.187***	0.365***	0.390***	0.325***	0.112***	0.309***	0.243***	Hispanic	0.252***
	(0.0235)	(0.0189)	(0.0193)	(0.0214)	(0.0202)	(0.0106)	(0.0169)		(0.00843)
Black	-0.116***	0.0372**	0.302***	0.420***	0.294***	0.125***	0.391***	Black	0.121***
	(0.0232)	(0.0182)	(0.0167)	(0.0159)	(0.0146)	(0.00968)	(0.0123)		(0.00739)
Asian	-0.0427	-0.183***	-0.0414	-0.0709	-0.242***	-0.0735***	-0.154***	Asian	-0.0238
	(0.0421)	(0.0361)	(0.0413)	(0.0498)	(0.0521)	(0.0208)	(0.0423)		(0.0172)
married_or_partner	0.156***	0.319***	0.350***	0.285***	0.205***	0.288***	0.294***	married_or_partner	0.170***
	(0.0170)	(0.0143)	(0.0127)	(0.0117)	(0.00947)	(0.00723)	(0.00820)		(0.00524)
some_college	0.549***	0.0423	0.0478*	0.0838***	0.0245	0.219***	0.0983***	some_college	0.0983***
	(0.0343)	(0.0279)	(0.0257)	(0.0228)	(0.0155)	(0.0146)	(0.0138)		(0.00981)
college	0.776***	0.364***	0.329***	0.286***	0.234***	0.476***	0.315***	college	0.300***
	(0.0365)	(0.0285)	(0.0264)	(0.0238)	(0.0173)	(0.0151)	(0.0151)		(0.0104)
postcollege	0.941***	0.475***	0.457***	0.459***	0.419***	0.622***	0.488***	postcollege	0.469***
	(0.0412)	(0.0300)	(0.0279)	(0.0246)	(0.0170)	(0.0161)	(0.0151)		(0.0109)
high_school	0.364***	0.0825***	0.0988***	0.114***	0.0259*	0.195***	0.0638***	high_school	0.0716***
	(0.0352)	(0.0270)	(0.0248)	(0.0217)	(0.0137)	(0.0143)	(0.0125)		(0.00942)
technical	0.293***	-0.00726	0.0171	-0.0244	-0.0384*	0.0944***	0.0355*	technical	-0.0697***
	(0.0453)	(0.0341)	(0.0301)	(0.0282)	(0.0222)	(0.0179)	(0.0191)		(0.0128)
female	0.190***	0.272***	0.241***	0.261***	0.294***	0.233***	0.302***	female	0.234***
	(0.0163)	(0.0123)	(0.0109)	(0.0102)	(0.00881)	(0.00648)	(0.00745)		(0.00480)
Popgrowth	0.0116	0.0447	-0.0436	-0.124***	-0.0467*	-0.0164	-0.0510**	Popgrowth	-0.0312**
	(0.0490)	(0.0367)	(0.0344)	(0.0322)	(0.0277)	(0.0200)	(0.0234)		(-0.016)
Observations	50,059	83,485	115,745	143,671	237,113	320,916	309,157	Observations	637,094
R-squared	0.058	0.111	0.128	0.122	0.061	0.105	0.092	R-squared	0.078

Table 9 – Interaction with education

	No college degree	College degree	No college degree	College degree			
	Anticipated ladder		Current ladder			Anticipated lad.	Current ladder
lny	0.259***	0.220***	0.429***	0.403***	lny	0.275***	0.424***
	(0.00472)	(0.00407)	(0.00430)	(0.00381)		(0.00316)	(0.00291)
mlny	0.0738**	-0.00459	-0.252***	-0.240***	mlny	0.0612**	-0.236***
	(0.0354)	(0.0305)	(0.0320)	(0.0286)		(0.0243)	(0.0222)
slny	0.0214	-0.0504	0.115**	-0.0801**	slny	-0.0143	0.0412
	(0.0493)	(0.0389)	(0.0448)	(0.0365)		(0.0326)	(0.0300)
Unemployment_Rate	-0.154	-0.130	-2.780***	-2.917***	Unemployment_Rate	-0.201	-2.77***
	(0.219)	(0.192)	(0.199)	(0.180)		(0.151)	(0.139)
Establishment_CD	1.433***	0.676***	0.212*	0.0948	Establishment_CD	1.64***	0.348***
	(0.135)	(0.112)	(0.123)	(0.105)		(0.108)	(0.0989)
					college	0.434***	0.350***
						(0.0356)	(0.0329)
					Estab CD * college	-0.895***	-0.537***
						(0.169)	(0.156)
Hispanic	0.0265**	0.209***	0.219***	0.0372***	Hispanic	0.0202**	0.173***
	(0.0129)	(0.0142)	(0.0115)	(0.0133)		(0.00930)	(0.00835)
Black	0.780***	0.569***	0.168***	-0.143***	Black	0.721***	0.0782***
	(0.0116)	(0.0106)	(0.0106)	(0.00993)		(0.00808)	(0.00746)
Asian	-0.136***	-0.215***	0.155***	-0.181***	Asian	-0.190***	-0.0356**
	(0.0361)	(0.0167)	(0.0331)	(0.0157)		(0.0184)	(0.0171)
married_or_partner	0.0381***	0.0609***	0.0737***	0.217***	married_or_partner	0.0366***	0.116***
	(0.00835)	(0.00714)	(0.00759)	(0.00670)		(0.00570)	(0.00525)
age	-0.0402***	-0.0325***	0.000483**	0.00162***	age	-0.0385***	0.00101***
	(0.000239)	(0.000218)	(0.000215)	(0.000203)		(0.000163)	(0.000149)
some_college	0.423***		0.0549***				
	(0.0133)		(0.0119)				
college		-0.109***		-0.150***			
		(0.00630)		(0.00592)			
high_school	0.297***		0.0563***				
	(0.0127)		(0.0113)				
technical	0.306***		-0.0914***				
	(0.0169)		(0.0153)				
female	0.298***	0.197***	0.209***	0.148***	female	0.259***	0.185***
	(0.00786)	(0.00623)	(0.00716)	(0.00585)		(0.00522)	(0.00481)
smoker	-0.113***	-0.137***	-0.574***	-0.403***	smoker	-0.134***	-0.549***
	(0.00891)	(0.0105)	(0.00815)	(0.00987)		(0.00659)	(0.00608)
religious	0.186***	0.0569***	0.221***	0.123***	religious	0.132***	0.184***
	(0.00846)	(0.00646)	(0.00773)	(0.00607)		(0.00556)	(0.00513)
Popgrowth	-4.00e-05	0.000134	-0.000101	-0.000569***	Popgrowth	5.77e-04	-0.031**
	(0.000250)	(0.000186)	(0.000226)	(0.000175)		(0.0163)	(0.0149)
Observations	321,282	292,042	337,288	297,547	Observations	613,324	634,835
R-squared	0.127	0.099	0.071	0.078	R-squared	0.127	0.092

Table 10 – Interaction with religiosity

	Religious	Non religious	Religious	Non religious
	Anticipated ladder		Current ladder	
lny	0.229***	0.273***	0.404***	0.442***
	(0.00428)	(0.00484)	(0.00393)	(0.00451)
mlny	0.0392	0.0600	-0.307***	-0.114***
	(0.0313)	(0.0380)	(0.0285)	(0.0353)
slny	-0.0691	0.0596	-0.0224	0.128***
	(0.0422)	(0.0507)	(0.0387)	(0.0473)
Unemployment_Rate	-0.442**	0.351	-3.06***	-2.15***
	(0.194)	(0.238)	(0.177)	(0.221)
Establishment_CD	1.03***	1.55***	0.189*	0.266**
	(0.119)	(0.141)	(0.109)	(0.131)
married_or_partner	0.00820	0.109***	0.126***	0.124***
	(0.00757)	(0.00858)	(0.00693)	(0.00798)
hispanic	0.0659***	0.110***	0.176***	0.187***
	(0.0119)	(0.0153)	(0.0106)	(0.0140)
black	0.771***	0.481***	0.107***	-0.0347**
	(0.00942)	(0.0168)	(0.00868)	(0.0157)
asian	-0.156***	-0.255***	-0.0577**	-0.0527**
	(0.0263)	(0.0250)	(0.0243)	(0.0234)
age	-0.0368***	-0.0402***	0.00238***	-0.00234***
	(0.000215)	(0.000258)	(0.000196)	(0.000238)
some_college	0.451***	0.497***	0.00473	0.195***
	(0.0139)	(0.0178)	(0.0124)	(0.0162)
college	0.519***	0.624***	0.150***	0.356***
	(0.0148)	(0.0186)	(0.0133)	(0.0170)
postcollege	0.654***	0.740***	0.290***	0.523***
	(0.0156)	(0.0193)	(0.0141)	(0.0177)
high_school	0.309***	0.336***	0.0328***	0.118***
	(0.0132)	(0.0175)	(0.0117)	(0.0159)
technical	0.324***	0.358***	-0.114***	-0.0216
	(0.0178)	(0.0229)	(0.0160)	(0.0210)
smoker	-0.0912***	-0.132***	-0.579***	-0.482***
	(0.00898)	(0.00956)	(0.00824)	(0.00890)
female	0.237***	0.269***	0.185***	0.172***
	(0.00683)	(0.00801)	(0.00627)	(0.00747)
Popgrowth	0.0046	-0.0173	-0.0302	-0.0403*
	(0.0220)	(0.0237)	(0.0200)	(0.0220)
Observations	383,861	229,463	399,065	235,770
R-squared	0.123	0.141	0.079	0.117

	Anticipated ladder	Current Ladder
lny	0.245***	0.418***
	(0.00323)	(0.00298)
mlny	0.0550**	-0.237***
	(0.0242)	(0.0222)
slny	-0.0225	0.0384
	(0.0326)	(0.0300)
Unemployment_Rate	-0.152	-2.77***
	(0.151)	(0.138)
Establishment_CD	1.76***	0.564***
	(0.138)	(0.128)
Religious	0.322***	0.316***
	(0.0347)	(0.0320)
Estab * Religious	-0.895***	-0.621***
	(0.165)	(0.152)
married_or_partner	0.0421***	0.118***
	(0.00570)	(0.00525)
hispanic	0.0786***	0.182***
	(0.00937)	(0.00846)
black	0.721***	0.0765***
	(0.00807)	(0.00746)
asian	-0.196***	-0.0453***
	(0.0184)	(0.0171)
age	-0.0378***	0.000847***
	(0.000166)	(0.000151)
some_college	0.458***	0.0583***
	(0.0109)	(0.00982)
college	0.549***	0.210***
	(0.0116)	(0.0104)
postcollege	0.678***	0.360***
	(0.0121)	(0.0110)
high_school	0.310***	0.0500***
	(0.0105)	(0.00938)
technical	0.327***	-0.0958***
	(0.0140)	(0.0127)
female	0.253***	0.183***
	(0.00522)	(0.00481)
smoker	-0.111***	-0.544***
	(0.00660)	(0.00609)
Popgrowth	-0.0015	-0.0331**
	(0.0162)	(0.0149)
Observations	613,324	634,835
R-squared	0.128	0.093

Table 11 – Interaction with smoking

VARIABLES	Smoker Anticipated ladder	Non smoker Anticipated ladder	Smoker Current ladder	Non smoker Current ladder	Anticipated ladder	Current ladder
lny	0.262***	0.242***	0.529***	0.385***	0.246***	0.418***
	(0.00831)	(0.00348)	(0.00774)	(0.00320)	(0.00323)	(0.00298)
mlny	0.0324	0.0543**	-0.255***	-0.235***	0.0508**	-0.240***
	(0.0652)	(0.0258)	(0.0605)	(0.0235)	(0.0242)	(0.0222)
slny	0.243***	-0.0869**	0.192**	-0.00386	-0.0257	0.0365
	(0.0876)	(0.0346)	(0.0815)	(0.0318)	(0.0325)	(0.0300)
Unemployment_Rate	0.0343	-0.191	-3.17***	-2.61***	-0.148	-2.77***
	(0.408)	(0.160)	(0.379)	(0.147)	(0.151)	(0.138)
Establishment_CD	1.78***	1.07***	0.293	0.135	1.04***	-0.0145
	(0.249)	(0.0968)	(0.231)	(0.0890)	(0.0997)	(0.0919)
					-0.271***	-0.727***
					(0.0404)	(0.0372)
					0.779***	0.893***
					(0.195)	(0.179)
Hispanic	0.138***	0.0763***	0.442***	0.104***	0.0779***	0.181***
	(0.0265)	(0.00990)	(0.0242)	(0.00892)	(0.00937)	(0.00846)
Black	0.808***	0.694***	0.339***	-0.00548	0.721***	0.0766***
	(0.0201)	(0.00879)	(0.0187)	(0.00811)	(0.00807)	(0.00746)
Asian	-0.282***	-0.178***	0.140**	-0.0812***	-0.195***	-0.0446***
	(0.0639)	(0.0186)	(0.0596)	(0.0173)	(0.0184)	(0.0171)
married_or_partner	0.0732***	0.0345***	0.115***	0.124***	-0.0378***	0.000855***
	(0.0147)	(0.00615)	(0.0137)	(0.00564)	(0.000165)	(0.000151)
age	-0.0475***	-0.0357***	-0.000738	0.000817***	0.0420***	0.118***
	(0.000486)	(0.000173)	(0.000449)	(0.000158)	(0.00570)	(0.00525)
some_college	0.334***	0.520***	0.0574***	0.0386***	0.457***	0.0580***
	(0.0237)	(0.0126)	(0.0219)	(0.0112)	(0.0109)	(0.00982)
college	0.461***	0.609***	0.292***	0.182***	0.549***	0.210***
	(0.0288)	(0.0130)	(0.0267)	(0.0116)	(0.0116)	(0.0104)
postcollege	0.586***	0.734***	0.467***	0.343***	0.678***	0.360***
	(0.0370)	(0.0134)	(0.0345)	(0.0120)	(0.0121)	(0.0110)
high_school	0.214***	0.364***	0.0531***	0.0330***	0.310***	0.0498***
	(0.0222)	(0.0123)	(0.0204)	(0.0108)	(0.0105)	(0.00938)
technical	0.250***	0.376***	-0.0950***	-0.115***	0.327***	-0.0963***
	(0.0314)	(0.0160)	(0.0291)	(0.0143)	(0.0140)	(0.0127)
female	0.231***	0.112***	0.147***	0.197***	0.254***	0.184***
	(0.0145)	(0.00596)	(0.0135)	(0.00549)	(0.00522)	(0.00481)
religious	0.333***	0.237***	0.133***	0.201***	0.136***	0.187***
	(0.0140)	(0.00556)	(0.0131)	(0.00511)	(0.00555)	(0.00513)
Popgrowth	-0.0855*	0.0200	-0.154***	-0.0056	-0.0005	-0.0323**
	(0.0478)	(0.0169)	(0.0447)	(0.0155)	(0.0162)	(0.0149)
Observations	4.066***	6.629***	1.952***	5.129***	723,044	750,143
R-squared	(0.562)	(0.219)	(0.524)	(0.202)	0.118	0.086

Table 12 – Interaction with gender

	Female	Male	Female	Male			
	Anticipated ladder		Current ladder			Anticipated ladder	Current ladder
lny	0.234***	0.258***	0.404***	0.429***	lny	0.246***	0.418***
	(0.00477)	(0.00438)	(0.00445)	(0.00398)		(0.00323)	(0.00298)
mlny	0.0873**	0.0200	-0.260***	-0.212***	mlny	0.0540**	-0.238***
	(0.0348)	(0.0337)	(0.0323)	(0.0305)		(0.0242)	(0.0222)
slny	-0.0420	-0.00464	0.0151	0.0534	slny	-0.0267	0.0357
	(0.0470)	(0.0450)	(0.0439)	(0.0410)		(0.0325)	(0.0300)
Unemployment_Rate	0.202	-0.487**	-2.84***	-2.66***	Unemployment_Rate	-0.143	-2.76***
	(0.218)	(0.208)	(0.203)	(0.189)		(0.151)	(0.138)
Establishment_CD	0.876***	1.52***	0.245**	0.0829	Establishment_CD	1.582***	0.181
	(0.133)	(0.125)	(0.124)	(0.114)		(0.120)	(0.111)
					Female	0.414***	0.188***
						(0.0332)	(0.0306)
					Estab CD * female	-0.774***	-0.0224
						(0.158)	(0.146)
Hispanic	-0.0129	0.161***	0.173***	0.184***	Hispanic	0.0777***	0.181***
	(0.0139)	(0.0127)	(0.0127)	(0.0113)		(0.00937)	(0.00846)
Black	0.733***	0.702***	0.117***	0.0413***	Black	0.721***	0.0763***
	(0.0114)	(0.0115)	(0.0107)	(0.0105)		(0.00807)	(0.00746)
Asian	-0.224***	-0.178***	0.0120	-0.100***	Asian	-0.196***	-0.0449***
	(0.0284)	(0.0240)	(0.0267)	(0.0220)		(0.0184)	(0.0171)
age	-0.0390***	-0.0366***	0.00207***	-0.000293	age	-0.0378***	0.000866***
	(0.000243)	(0.000232)	(0.000225)	(0.000208)		(0.000165)	(0.000151)
Married or partner	0.0544***	0.0173**	0.171***	0.0783***	Married or partner	0.0418***	0.118***
	(0.00825)	(0.00808)	(0.00770)	(0.00733)		(0.00570)	(0.00525)
some_college	0.487***	0.419***	-0.0154	0.142***	some_college	0.458***	0.0584***
	(0.0158)	(0.0151)	(0.0144)	(0.0134)		(0.0109)	(0.00982)
college	0.530***	0.560***	0.121***	0.312***	college	0.550***	0.210***
	(0.0168)	(0.0159)	(0.0154)	(0.0142)		(0.0116)	(0.0104)
postcollege	0.627***	0.716***	0.251***	0.485***	postcollege	0.678***	0.360***
	(0.0177)	(0.0166)	(0.0162)	(0.0149)		(0.0121)	(0.0110)
high_school	0.331***	0.289***	0.00892	0.0945***	high_school	0.311***	0.0501***
	(0.0152)	(0.0146)	(0.0137)	(0.0129)		(0.0105)	(0.00938)
technical	0.394***	0.267***	-0.143***	-0.0377**	technical	0.328***	-0.0958***
	(0.0207)	(0.0190)	(0.0190)	(0.0170)		(0.0140)	(0.0127)
smoker	-0.0952***	-0.130***	-0.617***	-0.473***	smoker	-0.112***	-0.544***
	(0.00986)	(0.00888)	(0.00923)	(0.00806)		(0.00660)	(0.00609)
religious	0.128***	0.142***	0.173***	0.199***	religious	0.136***	0.187***
	(0.00836)	(0.00740)	(0.00784)	(0.00673)		(0.00555)	(0.00513)
Popgrowth	-0.009	0.0059	-0.0272	-0.0374*	Popgrowth	-0.000812	-0.0326**
	(0.0238)	(0.0222)	(0.0221)	(0.0201)		(0.0162)	(0.0149)
Observations	294,861	318,463	306,495	328,340	Observations	613,324	634,835
R-squared	0.137	0.117	0.089	0.097	R-squared	0.128	0.093

Table 13A- Interaction with race – Anticipated ladder

	Non hispanicWhite	Black	Hispanic	Asian	Continuous interactions
lny	0.256***	0.150***	0.300***	0.161***	0.246***
	(0.00358)	(0.0103)	(0.0122)	(0.0175)	(0.00323)
mlny	0.0984***	0.146	-0.102	-0.399***	0.0529**
	(0.0272)	(0.0937)	(0.0725)	(0.151)	(0.0242)
slny	0.0204	-0.272**	-0.170	0.354*	-0.0252
	(0.0359)	(0.110)	(0.137)	(0.200)	(0.0326)
Unemployment_Rate	-0.0712	-0.722	0.450	-0.484	-0.145
	(0.167)	(0.583)	(0.467)	(0.996)	(0.151)
Establishment_CD	1.374***	0.317	0.106	0.971	1.505***
	(0.0983)	(0.336)	(0.368)	(0.666)	(0.0994)
hispanic					0.255***
					(0.0660)
black					1.159***
					(0.0543)
asian					0.0254
					(0.146)
Estab CD * hispanic					-0.818***
					(0.296)
Estab CD * Asian					-1.04
					(0.673)
Estab CD * Black					-2.11***
					(0.258)
age					-0.0378***
					(0.000165)
married_or_partner	0.0754***	0.0255	-0.140***	0.0106	0.0421***
	(0.00629)	(0.0187)	(0.0211)	(0.0371)	(0.00570)
some_college	0.410***	0.256***	0.834***	0.219**	0.458***
	(0.0130)	(0.0323)	(0.0326)	(0.1000)	(0.0109)
college	0.510***	0.288***	0.875***	0.270***	0.550***
	(0.0135)	(0.0364)	(0.0394)	(0.0986)	(0.0116)
postcollege	0.654***	0.364***	0.893***	0.358***	0.678***
	(0.0140)	(0.0396)	(0.0465)	(0.0998)	(0.0121)
high_school	0.279***	0.171***	0.493***	0.127	0.311***
	(0.0126)	(0.0313)	(0.0285)	(0.104)	(0.0105)
technical	-0.0391***	-0.0315***	-0.0372***	-0.0290***	0.329***
	(0.000177)	(0.000570)	(0.000729)	(0.00129)	(0.0140)
female	0.273***	0.276***	0.147***	0.190***	0.253***
	(0.00569)	(0.0176)	(0.0203)	(0.0321)	(0.00522)
smoker	-0.150***	-0.0496**	0.0204	-0.192***	-0.112***
	(0.00724)	(0.0204)	(0.0266)	(0.0495)	(0.00660)
rel	0.117***	0.379***	0.155***	0.108***	0.136***
	(0.00589)	(0.0228)	(0.0222)	(0.0323)	(0.00555)
Pop growth	0.00897	0.0181	0.0119	-0.0714	0.00118
Observations	518,657	49,787	46,564	11,010	613,324
R square	0.124	0.087	0.109	0.068	0.128

Table 13B- Interaction with race – Current ladder

	Non hisp. White	Black	Hispanic	Asian	Continuous interactions
lny	0.439***	0.325***	0.336***	0.248***	0.418***
	(0.00311)	(0.0114)	(0.0116)	(0.0176)	(0.00298)
mlny	-0.266***	-0.0684	-0.453***	-0.0584	-0.241***
	(0.0231)	(0.103)	(0.0672)	(0.152)	(0.0222)
slny	0.129***	-0.240**	-0.0141	-0.00298	0.0322
	(0.0313)	(0.122)	(0.128)	(0.203)	(0.0300)
Unemployment_Rate	-2.71***	-2.87***	-1.35***	-1.15	-2.76***
	(0.143)	(0.646)	(0.433)	(1.01)	(0.138)
Establishment_CD	0.531***	-0.0599	-1.72***	-2.08***	0.585***
	(0.0850)	(0.371)	(0.344)	(0.670)	(0.0919)
hispanic					0.664***
					(0.0589)
black					0.427***
					(0.0502)
asian					0.536***
					(0.136)
Estab CD * hispanic					-2.20***
					(0.264)
Estab CD * Asian					-2.71***
					(0.624)
Estab CD * Black					-1.69***
					(0.238)
age	0.000496***	0.00570***	-0.00687***	-0.00594***	0.000855***
	(0.000153)	(0.000623)	(0.000667)	(0.00128)	(0.000151)
married_or_partner	0.148***	0.0220	0.128***	-0.0240	0.118***
	(0.00548)	(0.0208)	(0.0197)	(0.0373)	(0.00525)
some_college	0.101***	-0.271***	0.0665**	0.211**	0.0581***
	(0.0105)	(0.0353)	(0.0305)	(0.0994)	(0.00982)
college	0.249***	-0.146***	0.178***	0.238**	0.210***
	(0.0110)	(0.0399)	(0.0373)	(0.0979)	(0.0104)
postcollege	0.400***	-0.0216	0.335***	0.411***	0.360***
	(0.0115)	(0.0435)	(0.0445)	(0.0991)	(0.0110)
high_school	0.0535***	-0.0209	0.0829***	0.245**	0.0510***
	(0.0101)	(0.0339)	(0.0257)	(0.103)	(0.00938)
technical	-0.0563***	-0.395***	0.00528	0.0295	-0.0943***
	(0.0135)	(0.0480)	(0.0395)	(0.134)	(0.0127)
female	0.186***	0.213***	0.196***	0.210***	0.183***
	(0.00499)	(0.0195)	(0.0191)	(0.0323)	(0.00481)
smoker	-0.580***	-0.443***	-0.359***	-0.393***	-0.545***
	(0.00635)	(0.0226)	(0.0251)	(0.0497)	(0.00609)
rel	0.187***	0.269***	0.200***	0.110***	0.188***
Popgrowth	-0.0233	-0.0239	0.0691*	-0.0983	-0.0290*
Observations	556,147	51,235	51,066	11,246	634,835
R-squared	0.106	0.061	0.052	0.053	0.093

Table 14 – Interaction with marital status

	Married or partner	**No partner**	**Married or partner**	**No partner**			
	Anticipated ladder		Current ladder			Anticipated ladder	Current ladder
lny	0.287***	0.199***	0.467***	0.362***	lny	0.246***	0.418***
	(0.00443)	(0.00478)	(0.00395)	(0.00458)		(0.00323)	(0.00298)
mlny	0.0295	0.0777*	-0.288***	-0.172***	mlny	0.0524**	-0.238***
	(0.0304)	(0.0398)	(0.0270)	(0.0378)		(0.0242)	(0.0222)
slny	-0.0144	-0.0374	-0.00545	0.106**	slny	-0.0258	0.0355
	(0.0407)	(0.0537)	(0.0364)	(0.0511)		(0.0325)	(0.0300)
Unemployment_Rate	-0.0363	-0.307	-2.64***	-2.91***	Unemployment_Rate	-0.146	-2.76***
	(0.188)	(0.250)	(0.167)	(0.238)		(0.151)	(0.138)
Establishment_CD	1.09***	1.38***	0.261**	0.0679	Establishment_CD	1.41***	0.112
	(0.114)	(0.151)	(0.102)	(0.144)		(0.133)	(0.122)
					Married or partner	0.116***	0.0976***
						(0.0339)	(0.0312)
					Estab CD * partner	-0.356**	0.0977
						(0.161)	(0.149)
Hispanic	0.0471***	0.156***	0.213***	0.194***	Hispanic	0.0777***	0.181***
	(0.0120)	(0.0151)	(0.0105)	(0.0141)		(0.00937)	(0.00846)
Black	0.681***	0.734***	-0.0413***	0.158***	Black	0.721***	0.0763***
	(0.0119)	(0.0113)	(0.0107)	(0.0108)		(0.00807)	(0.00746)
Asian	-0.207***	-0.185***	-0.224***	0.173***	Asian	-0.196***	-0.0449***
	(0.0238)	(0.0290)	(0.0213)	(0.0280)		(0.0184)	(0.0171)
age	-0.0361***	-0.0395***	0.00384***	-0.00121***	age	-0.0378***	0.000866***
	(0.000236)	(0.000242)	(0.000210)	(0.000228)		(0.000165)	(0.000151)
some_college	0.501***	0.415***	0.105***	0.0147	some_college	0.457***	0.0585***
	(0.0154)	(0.0158)	(0.0134)	(0.0148)		(0.0109)	(0.00982)
college	0.592***	0.512***	0.311***	0.0939***	college	0.549***	0.210***
	(0.0159)	(0.0175)	(0.0138)	(0.0164)		(0.0116)	(0.0104)
postcollege	0.710***	0.648***	0.452***	0.245***	postcollege	0.678***	0.360***
	(0.0164)	(0.0190)	(0.0143)	(0.0180)		(0.0121)	(0.0110)
high_school	0.375***	0.246***	0.101***	0.00786	high_school	0.310***	0.0502***
	(0.0148)	(0.0152)	(0.0127)	(0.0141)		(0.0105)	(0.00938)
technical	0.378***	0.286***	0.0245	-0.227***	technical	0.327***	-0.0957***
	(0.0187)	(0.0219)	(0.0163)	(0.0206)		(0.0140)	(0.0127)
female	0.264***	0.245***	0.227***	0.140***	female	0.253***	0.183***
	(0.00653)	(0.00880)	(0.00584)	(0.00840)		(0.00522)	(0.00481)
smoker	-0.101***	-0.120***	-0.479***	-0.605***	religious	-0.111***	-0.544***
	(0.00900)	(0.00981)	(0.00805)	(0.00937)		(0.00660)	(0.00609)
religious	0.0812***	0.221***	0.185***	0.193***	smoker	0.136***	0.187***
	(0.00695)	(0.00917)	(0.00623)	(0.00876)		(0.00555)	(0.00513)
Popgrowth	-0.0011	-2.14e-05	-0.0367**	-0.0306	Popgrowth	-0.0011	-0.0326**
	(0.0209)	(0.0257)	(0.0186)	(0.0245)		(0.0162)	(0.0149)
Observations	368,748	244,576	378,362	256,473	Observations	613,324	634,835
R-squared	0.108	0.155	0.093	0.068	R-squared	0.128	0.093

Table 15 – Worry

WORRY		State level			MSA level		Individual level	
lny							-0.0588***	-0.0586***
							(0.00140)	(0.00139)
mlny				-0.0176	-0.00818	-0.0105	0.0582***	0.0340**
				(0.0142)	(0.0129)	(0.0132)	(0.0137)	(0.0146)
slny	-0.0334**	-0.0577***	0.00501	0.0158	-0.0319**	-0.0337**	-0.00684	-0.000196
	(0.0138)	(0.0141)	(0.0269)	(0.0201)	(0.0147)	(0.0153)	(0.0193)	(0.0224)
Unemployment_Rate	0.581***		0.545***	0.349***	0.200***		0.431***	
	(0.103)		(0.115)	(0.0648)	(0.0585)		(0.0720)	
Establishment_CD	0.160**	0.341***	0.140*	0.201***	0.229***	0.261***	0.167***	0.264***
	(0.0712)	(0.0683)	(0.0812)	(0.0557)	(0.0492)	(0.0452)	(0.0615)	(0.0556)
married_or_partner			-0.0244	-0.0244	-0.0932***	-0.0963***	0.00778***	0.00757***
			(0.0719)	(0.0719)	(0.0323)	(0.0315)	(0.00199)	(0.00201)
age			0.00327***		-0.000452	-0.000166	-0.00196***	-0.00194***
			(0.00114)		(0.000564)	(0.000565)	(5.60e-05)	(5.56e-05)
hispanic			0.0520*		0.0383***	0.0423***	0.0128***	0.0141***
			(0.0266)		(0.0133)	(0.0137)	(0.00431)	(0.00419)
black			-0.0565		-0.0472***	-0.0363**	-0.0607***	-0.0605***
			(0.0343)		(0.0178)	(0.0174)	(0.00312)	(0.00319)
asian			-0.121***		-0.0229	-0.0119	-0.0127***	-0.0110**
			(0.0345)		(0.0849)	(0.0953)	(0.00472)	(0.00485)
At least some college			0.0452					
			(0.0498)					
some_college					-0.184***	-0.198***	-0.0350***	-0.0352***
					(0.0441)	(0.0442)	(0.00377)	(0.00377)
college					-0.126**	-0.172***	-0.0310***	-0.0315***
					(0.0499)	(0.0498)	(0.00465)	(0.00466)
postcollege					0.00123	-0.0502	-0.0185***	-0.0192***
					(0.0428)	(0.0408)	(0.00457)	(0.00459)
high_school					-0.0804**	-0.102**	-0.0520***	-0.0523***
					(0.0383)	(0.0400)	(0.00377)	(0.00378)
technical					-0.327***	-0.358***	-0.0213***	-0.0217***
					(0.0543)	(0.0518)	(0.00474)	(0.00474)
female			0.264***		0.116***	0.113***	0.0501***	0.0501***
			(0.0815)		(0.0307)	(0.0309)	(0.00191)	(0.00191)
smoker					0.0742*	0.0682*	0.0945***	0.0945***
					(0.0403)	(0.0405)	(0.00231)	(0.00232)
rel			0.0312		-0.0595***	-0.0772***	0.00337*	0.00265
			(0.0332)		(0.0203)	(0.0204)	(0.00178)	(0.00182)
Popgrowth	0.00452	0.0218	0.0110	0.00914***	-0.000289	0.000565	0.00908***	0.0130***
	(0.0247)	(0.0264)	(0.0224)	(0.00263)	(0.00464)	(0.00483)	(0.00292)	(0.00291)
Year F.E	X	X	X	X	X	X	X	X
Observations	204	204	204	1,448	1,448	1,448	637,769	637,769
R-squared	0.323	0.214	0.482	0.181	0.327	0.318	0.034	0.034