Online Appendix for "Creative Destruction and Subjective Wellbeing"

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August 2, 2016

A1 Theory Appendix

A1.1 Transitional Dynamics

In this Appendix we consider a sudden change in the entry rate to analyze its impact on the economy's transition from one steady state to another.

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

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

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

$$\dot{u}_t = x_{new} - (1 + x_{new})\, u_t. \tag{A1}$$

The solution to this differential equation is simply

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

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

$$\begin{aligned} g_t &= \left\{\left[\frac{x_{old}}{1 + x_{old}} - \frac{x_{new}}{1 + x_{new}}\right] e^{-(1+x_{new})t} + \frac{x_{new}}{1 + x_{new}}\right\} \ln \lambda, \\ &= g_{ss}^{new} - e^{-(1+x_{new})t}\left[g_{ss}^{new} - g_{ss}^{old}\right]. \end{aligned}$$

Now we turn to the value functions

$$rE_t - \dot{E}_t = \beta \pi Y_t + x_{new}(U_t - E_t), \text{ and } rU_t - \dot{U}_t = bY_t + (m_t(u_t, v_t)/u_t)(E_t - U_t).$$

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_{new}, x_{old}, 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 $x_{old} = 6.4\%$ and $x_{new} = 8.7\%$ 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 $b = 0.3\%$.

Figure A1: Unemployment Rate

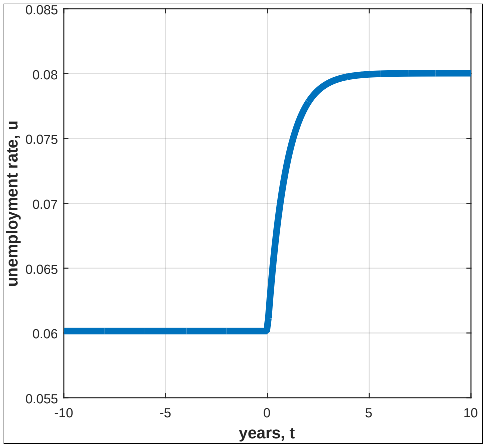
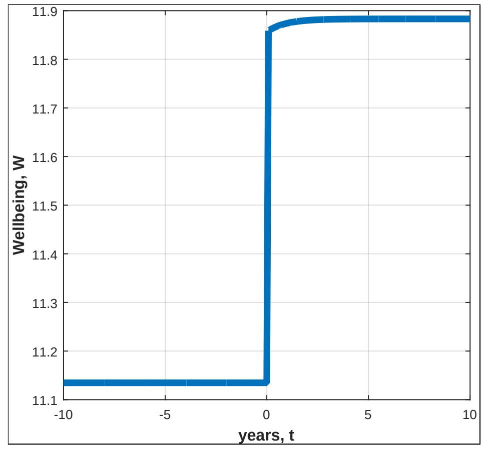


Figure A2: Wellbeing



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_{old} to x_{new}. Figure A1 shows the evolution of the unemployment rate and the Figure A2 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 (A1). 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.

Figures A3 and A4 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.

Figure A3: Change in Wellbeing with Different r Values

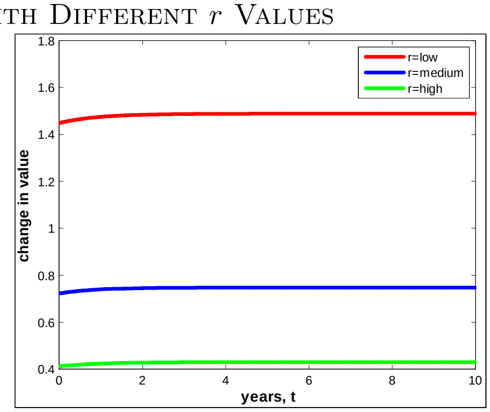


Figure A4: Change in Wellbeing with Different b Values

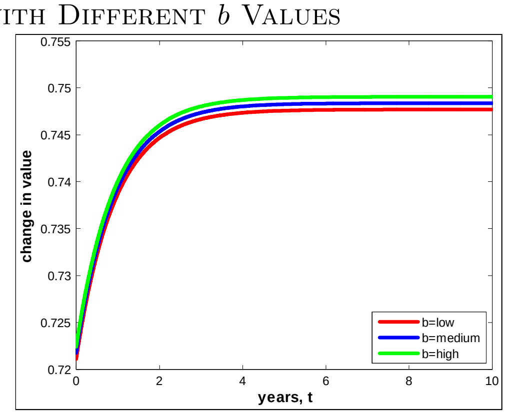


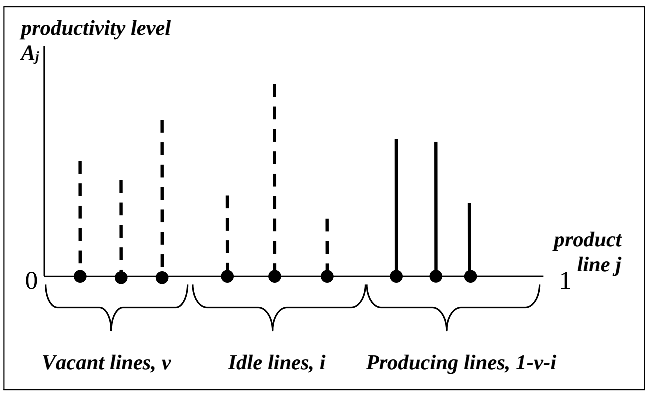
Figure A3 shows that the increase in welfare is higher, the lower is the discount rate. Similarly, Figure A4 shows that the increase in welfare after the increase in entry is higher, the higher is the unemployment benefit. Hence, the steady-state results of the benchmark model are confirmed in this simple numerical exercise even when the transitions are taken into account.

A1.2 Exogenous Job Destruction

So far, the only source of job destruction, as well as job creation, was new entry. However, in reality, new entry is not the only source of job destruction. Following Pissarides (1990) we now allow for an additional -exogenous- source of job destruction rate. To capture this, we assume that each job is destroyed at the rate ϕ. Upon this destruction shock, the 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 being *idle* to being *vacant*. Finally, when a vacant product line finds a suitable worker, the product line becomes *producing*. Similarly, if a new entrant enters into a currently producing line, then the sector becomes directly *vacant,* the incumbent worker joins the unemployment pool, and the new entrant searches for a new suitable worker.

In steady state, there will a constant fraction of product lines that are *vacant* (of measure v), a constant fraction of lines that are *idle* (of measure i), and the remaining fraction will be *producing*. We illustrate this economy in Figure A5:

Figure A5: Model Economy



Next, one can compute the steady-state fraction of idle, vacant, and producing lines using the following flow equations:

$$\begin{aligned}(1-v)\,x &= m;\\ (1-v-i)\,\phi &= ix.\end{aligned}$$

The left-hand side of the first equation is the flow of sectors *into* the *vacant* stage: it is equal to the flow of productive sectors which become (directly) vacant, namely $(1-v-i)x$, plus the flow of idle sectors which become vacant, namely ix. The sum of these two terms is equal to $(1-v)x$. The right-hand side of the first equation is the flow of sectors *out of* the vacant stage: it is simply equal to the job matching rate m.

Similarly, the left-hand side of the second equation is the flow *into* the *idle* stage: it is equal to the flow of producing sectors which become idle, namely $(1-i-v)$ times the flow probability ϕ of an exogenous job destruction shock in such a sector. The right-hand side is equal to the flow *out of* the idle stage. It is equal to the number of idle sectors times the flow probability of a new entry in such a sector, which will make it become vacant: namely, ix.

By definition unemployment is equal to all the product lines where there is no production, therefore:

$$u = i + v$$

Hence the above flow equations can be reexpressed as

$$(1 - v)\, x = m, \text{ and } (1 - u)\, \phi = (u - v)\, x. \tag{A2}$$

Moreover, the matching technology is such that

$$m = u^{\alpha} v^{1-\alpha} \tag{A3}$$

Substituting (A3) into (A2) we get

$$(1 - v)\, x = u^{\alpha} v^{1-\alpha}, \text{ and } (1 - u)\, \phi = (u - v)\, x. \tag{A4}$$

These last two equations give us a system of 2-equations and 2-unknowns. For analytical tractability, assume $\alpha = 0.5$. Then the equilibrium unemployment rate solves a simple quadratic equation, yielding the solution:

Figure A6: Unemployment Rate vs x

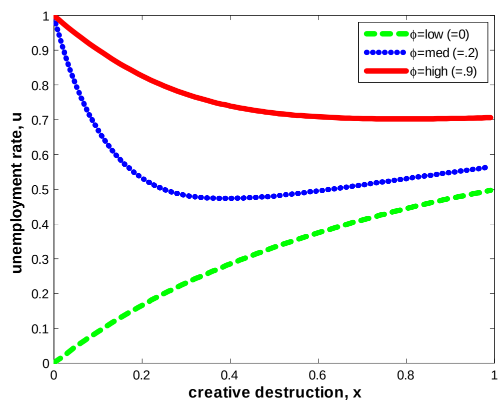
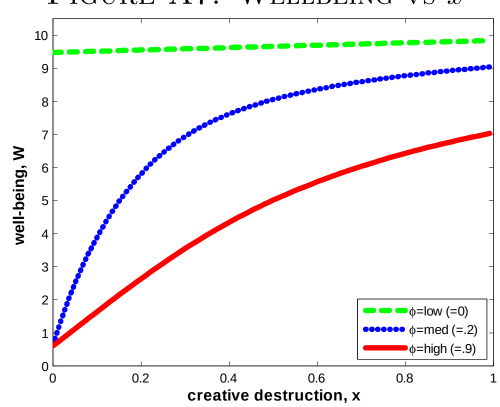


Figure A7: Wellbeing vs x



Unlike in the model without exogenous job destruction, the relationship between entry and unemployment, and therefore between growth and unemployment, is no longer automatically monotonic. Here, jobs are being destroyed both by creative destruction at the rate x and also by the exogenous shock ϕ. The only source of job creation is job postings 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 Figure A6 that plots the unemployment rate against the entry rate for various values of the exogenous destruction rate $\phi \in \{0, 0.2, 0.9\}$. As expected, as $\phi \to 0$, entry (turnover) and unemployment becomes positively correlated: in this case the *job destruction effect* dominates the job creation effect. On the other hand, when ϕ is very high, then the relationship is negative: in that case the *job creation effect* of innovation-led growth on unemployment dominates the job destruction effect.

Now, moving to the relationship between the innovation-led turnover rate x and wellbeing W, Figure A7 shows that the higher the exogenous job destruction rate ϕ, the more positive the effect of x on W, especially for small initial values of x : this is not surprising, as the lower x is relative to ϕ, the more the job creation effect of increasing x dominates the job destruction effect.

A1.3 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:

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

Now the value functions take the following form

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

Using the above expressions for E and U, wellbeing 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 wellbeing 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 wellbeing by more.

The net effect of creative destruction on wellbeing 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 wellbeing is negative. More precisely:

Proposition 1. *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).[1]

[1] More formally, if

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

A1.4 Endogeneizing the Turnover Rate

In this section of the Appendix, we endogenize 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

$$P = \frac{\pi Y}{r - g + x} \tag{A5}$$

and

$$V = \frac{Y}{r - g + 1}\left[-c + \frac{\pi}{r - g + x}\right]. \tag{A6}$$

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:

$$V = 0. \tag{A7}$$

Then using (A6) and (A7) 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 (A7) 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

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

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

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

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

$$x = \frac{-\left(1 - \Pi - \ln\lambda\right) + \sqrt{\left(1 - \Pi - \ln\lambda\right)^2 + 4\Pi}}{2}. \tag{A8}$$

Proposition 2. *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*

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

This in turn has implications for the relationship between wellbeing and the determinants of creative destruction. In particular a lower entry cost will have the same effects on wellbeing as the effects of an increase in x identified above. An increase in λ will enhance both the growth effect for given x and the creative destruction effect (it will foster x).

A1.5 Long-term Cost of Unemployment

In the baseline model, innovation has a long-lasting impact on income whereas the cost of innovation is transitory. Recent literature on routine vs non-routine jobs has shown that the IT revolution has replaced the workers executing routine jobs by computers and pushed them into unemployment [see David et al. (2003)]. Since these workers do not have human capital that can be carried to new jobs, they suffer from both longer unemployment spells and lower salaries. Clearly innovation, creative destruction, and the resulting unemployment can have long-lasting costs. For instance, job-specific human capital might be lost upon the job destruction and finding a new job might be even more difficult. Relatedly, Hamermesh (1987), Jacobson et al. (1993), Polsky (1999), Couch and Placzek (2010), Davis and von Wachter (2011), and von Wachter et al. (2011) show that older and more experienced workers have longer unemployment periods and lower wage replacement rates.

There are various ways of capturing longer-term costs of innovation. One tractable way of introducing this into our baseline model is to consider a lower efficiency in matching technology. To capture the increased difficulty in finding a new match, we can consider a matching technology

$$m(u_t, v_t) = \xi u_t^{\alpha} v_t^{1-\alpha} \tag{A9}$$

where, everything else equal, a lower value of ξ would imply a longer term of unemployment. At the extreme, as $\xi \to 0$, the spell of unemployment goes to infinity. With this matching function, equilibrium unemployment rate becomes

$$u_t = \frac{x}{\xi + x}.$$

As expected, higher efficiency ξ lowers the equilibrium unemployment rate and the unemployment rate $\to 1$ when $\xi \to 0$. Accordingly, the workers' value functions become

$$rE - \dot{E} = \beta\pi Y + x(U - E) \tag{A10}$$
$$rU - \dot{U} = bY + \xi(E - U). \tag{A11}$$

And the wellbeing becomes

$$W = \frac{Y}{(\rho - g)} \left\{ \beta\pi - \frac{x}{\xi + x}\left(\beta\pi - b\right) \right\}$$

we can capture the longer term cost of unemployment by a lower efficiency in the matching technology.

$$\frac{\partial^2 W}{\partial x \partial \xi} = \frac{Y(\beta\pi - b)}{(\rho - g)} \frac{\xi - x}{(\xi + x)^3} > 0 \text{ when } 0 < x < \xi.$$

This implies that, controlling for growth rate, the effect of creative destruction on wellbeing is always negative. However it is less so when the cost of unemployment is short term. As the cost of unemployment has longer impact (as ξ declines), the negative impact of innovation on wellbeing through unemployment is amplified.

A1.6 Taxing Labor to Finance Unemployment Benefits

In this section, we consider a framework where unemployment benefits are financed by labor and profit taxes. This implies that while unemployed workers gain from unemployment benefits, the employed workers will be hurt by taxes. Let us denote the labor tax by τ_w and profit tax by τ_π. In this case government period-by-period balanced budget implies

$$(1 - u_t)(\tau_w w_t + \tau_\pi \pi_t) = b_t u_t$$

where the left-hand side denotes the tax revenue from labor income tax and corporate profit tax and the right-hand side denotes the total amount of distributed unemployment benefit. Imposing $w_t = \beta\pi Y_t$, $\pi_t = \pi Y_t$ and $b_t = bY_t$ we get

$$(1 - u_t)(\tau_w \beta\pi + \tau_\pi \pi) = bu_t.$$

Let us denote the fraction of unemployment benefit financed by $\kappa \in [0, 1]$. Then we can express the portion of labor tax payment as

$$\kappa b u_t = (1 - u_t) \tau_w \beta\pi$$

and the portion of profit tax as

$$(1 - \kappa) b u_t = (1 - u_t) \tau_\pi \pi.$$

Since the equilibrium unemployment rate is

$$u_t = \frac{x}{1 + x}$$

we can express the required labor tax rate as

$$\tau_w = \frac{\kappa b x}{\beta\pi}.$$

Solving the value functions for the employed and unemployed worker we find

$$rE - \dot{E} = (1 - \tau_w) \beta\pi Y + x(U - E), \text{ and} \tag{A12}$$

$$rU - \dot{U} = bY + (m(u, v)/u)(E - U). \tag{A13}$$

In this case, the wellbeing is simply

$$W_t = \frac{Y_t}{(\rho - g)} \left\{ \beta\pi - \frac{x}{1 + x} [\beta\pi - (1 - \kappa) b] \right\}.$$

$$\frac{\partial W_t}{\partial x} = -\frac{[\beta\pi - (1-\kappa)\,b]\,Y_t}{(1+x)^2\,(\rho-g)} < 0, \text{ and } \frac{\partial^2 W_t}{\partial x \partial b} = \frac{(1-\kappa)\,Y_t}{(1+x)^2\,(\rho-g)} > 0.$$

Note that, when controlling for the growth rate, wellbeing is negatively affected by turnover, but less so when the unemployment benefit is higher. Note that, as long as the tax burden of the unemployment benefit is shared by both workers and firm owners, i.e., $\kappa < 1$, the negative impact of the creative destruction is mitigated by the unemployment benefit.

A1.7 Sufficient Condition for Exit in Section 2.1.2 .

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

$$rV_1 - \dot{V}_1 = \pi Y + x\,(V_2 - V_1)\,, \text{ and } rV_2 - \dot{V}_2 = \pi Y + \frac{m}{v}\,(0 - V_2)\,.$$

Since in equilibrium $m = v$, we get

$$V_2 = \frac{\pi Y}{1 + r - g}. \tag{A14}$$

Then we can express V_1 as

$$V_1 = \frac{(1-\beta)\pi Y + xV_2}{x + r - g} \tag{A15}$$

Note that (A14) implies $\pi Y = (1 + r - g)\,V_2$. Substitute this into (A15) :

$$V_1 = V_2 + \frac{V_2}{x + r - g} > V_2.$$

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 our analysis.

A2 Empirical Appendix

A2.1 Testing Prediction 4

In this section, we test Prediction 4: *A higher turnover rate increases future wellbeing more for more forward-looking individuals.*

The existing literature argued that old individuals, educated individuals, and rich individuals tend to be more patient [Gilman (1976), Black (1983), Lawrance (1991), Warner and Pleeter (2001)]. Therefore, we use age, education, and income to proxy for individuals with different patience levels. The interesting finding is that all these different proxies deliver similar results. Note that these variables, as Table A1 shows, are not that highly correlated.

Table A1: Correlation Matrix

	Log (income)	Age	Education
Log (income)	1.00		
Age	0.140	1.00	
Education	0.414	0.109	1.00

The highest correlation is between education and log income: 0.4. This indicates that each of them is potentially carrying a different information about the discount rate.[2] Following the literature, our test for Prediction 4 will thus be to interact our creative destruction variables with these three proxies: age, education, income. Since these are individual-level characteristics, we perform the regressions at the individual level. The main coefficient of interest is that of the interaction term between the job creation rate and the discount rate proxies. All regressions include individual controls as well as the job destruction rates and the interaction term of job destruction with the discount rate proxy but we only report the job creation rate main effect and interaction to save space.

Following the theoretical predictions, we use the future ladder as dependent variable. Recall that when creative destruction increases from x_1 to x_2 (where $x_2 > x_1$), the economy starts transitioning from a low steady state to a higher steady state in terms of its wellbeing. Given that the economy will be closer to the new steady state in any future year than the current period, the positive impact of creative destruction will reflect itself more in future ladder than the current ladder. Hence, empirically we test this Prediction 4 using the future ladder in columns 1 and 2. We also take the difference between the reported values of future ladder and current ladder in columns 3 and 4 in order to get closer to the differential effect of creative destruction on future wellbeing.

Individual-level Results The regression results are reported on Table A11.

The discount rate proxy is age in Panel A, number of years of schooling in Panel B, and log of income in Panel C. These variables are demeaned such that the coefficient for the job creation rate is the effect of job creation for individuals either of average age in Panel A (40 years old), or of average education in Panel B (14 years of schooling), or of average log of income in Panel C. Now looking at the interaction terms in all columns, we see that the effect of the job creation rate is significantly more positive for older individuals, more educated individuals, and richer individuals. Columns 2 and 4 are similar to columns 1 and 3 except that additional MSA-level controls are added. This provides evidence in favor of Prediction 4. In terms of magnitude, if we look at column 2, a one standard deviation increase in age increases the effect of the job creation rate on the future ladder by 35% ($= 11.91 \times 0.028/0.949$), a one standard deviation increase in education increases it by almost 50% ($= 2.346 \times 0.181/0.919$), and a one standard deviation increase in log of income increases it by 66% ($= 0.984 \times 0.655/0.967$). Thus these interaction effects are not only statistically significant but also economically so.

[2] One might think of smoking as a good discount rate proxy. But the literature has shown that smoking is strongly associated with risk-taking behavior [Anderson and Mellor (2008), Pfeifer (2012)]. Since discounting and risk-aversion are different forces in our model and have different implications, we have been hesitant to use smoking as a proxy for differential discounting.

A2.2 Additional Tables

Table A2: Robustness to An Alternative Measure of Life Satisfaction

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Life satisfaction (BRFSS)					
	MSA-level			Individual level		
Job turnover	0.258	0.377	0.443	0.126	0.171	0.241
	(0.0785)	(0.0787)	(0.0859)	(0.0520)	(0.0488)	(0.0474)
Unemployment rate		-1.389	-1.365		-0.898	-0.993
		(0.252)	(0.255)		(0.165)	(0.155)
MSA log of income	0.137	0.0710	0.0839	-0.0401	-0.0717	-0.0857
	(0.0145)	(0.0146)	(0.0152)	(0.0172)	(0.0202)	(0.0120)
Additional MSA controls			x			x
Individual controls (incl. income)				x	x	x
Year and Month F.E.				x	x	x
Observations	364	364	343	780,169	780,169	738,770
R-squared	0.186	0.347	0.385	0.103	0.103	0.104
p-value Job Turnover [1]= Job Turnover [2]		0.004				
p-value Job Turnover [4]= Job Turnover [5]					0.005	

Note: The first three columns are similar to that of Table 2 Panel A except that the life satisfaction measure comes from BRFSS, for which sample years are 2005-2010. The last three columns are similar to the first three columns of Table 2 Panel B except that the life satisfaction measure comes from BRFSS.

Table A3: Robustness to An Alternative Measure of Life Satisfaction

	(1)	(2)	(3)	(4)
VARIABLES	Life satisfaction (BRFSS)			
	MSA-level		Individual level	
Job creation	1.546	1.657	0.342	0.410
	(0.221)	(0.228)	(0.0837)	(0.0925)
Job destruction	-1.236	-1.217	-0.115	-0.0489
	(0.237)	(0.237)	(0.0792)	(0.0804)
MSA log of income	0.124	0.133	-0.0421	-0.0533
	(0.0133)	(0.0142)	(0.0166)	(0.0125)
Additional MSA controls		x		x
Individual controls (incl. income)			x	x
Year and Month F.E.			x	x
Observations	364	343	780,169	738,770
R-squared	0.275	0.323	0.103	0.104

Note: The first two columns are similar to that of Table 3 Panel A except that the life satisfaction measure comes from BRFSS, for which sample years are 2005-2010. The last two columns are similar to the first two columns of Table 3 Panel B except that the life satisfaction measure comes from BRFSS.

Table A4: Pre-crisis vs "Crisis" Years

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Life satisfaction (BRFSS, MSA-level)					
	2005-2007			2008-2010		
Job turnover	0.231	0.257	0.349	0.158	0.332	0.390
	(0.0747)	(0.0681)	(0.0767)	(0.112)	(0.116)	(0.129)
Unemployment rate		-1.340	-1.359		-1.043	-1.022
		(0.282)	(0.297)		(0.213)	(0.218)
MSA log of income	0.148	0.103	0.116	0.143	0.0808	0.0870
	(0.0182)	(0.0192)	(0.0204)	(0.0169)	(0.0180)	(0.0199)
Additional MSA controls			x			x
Observations	364	364	326	364	364	336
R-squared	0.146	0.217	0.254	0.160	0.262	0.279

Note: Everything in the first three columns is similar to the first three columns of Table A2, except that the variables are averaged across 2005-2007 instead of 2005-2010. The last three columns are similar to the first three except that the variables are averaged across 2008-2010.

Table A5: Pre-crisis v. "Crisis" Years

	(1)	(2)	(3)	(4)
VARIABLES	Life satisfaction (BRFSS, MSA-level)			
	2005-2007		2008-2010	
Job creation	1.014	1.127	0.630	0.659
	(0.154)	(0.162)	(0.259)	(0.284)
Job destruction	-0.905	-0.842	-0.225	-0.135
	(0.206)	(0.222)	(0.227)	(0.243)
Log income	0.143	0.156	0.136	0.140
	(0.0170)	(0.0181)	(0.0170)	(0.0196)
Additional MSA controls		x		x
Observations	364	326	364	336
R-squared	0.210	0.247	0.173	0.190

Note: Everything in the first two columns is similar to the first two columns of Table A3, except that the variables are averaged across 2005-2007 instead of 2005-2010. The last two columns are similar to the first two except that the variables are averaged across 2008-2010.

Table A6: Robustness to An Alternative Measure of Creative Destruction

	(1)	(2)	(3)	(4)
VARIABLES	Current ladder			Future ladder
Job turnover rate	0.820	0.981	1.028	0.551
	(0.150)	(0.167)	(0.172)	(0.169)
Unemployment rate		-2.438	-2.448	-0.358
		(0.549)	(0.598)	(0.455)
Log of income	0.426	0.315	0.305	0.363
	(0.0936)	(0.0947)	(0.114)	(0.0884)
Additional MSA controls			x	x
Observations	358	358	344	344
R-squared	0.170	0.259	0.292	0.410
p-value Job Turnover [1]= Job Turnover [2]		0.02		

Note: Everything is similar to Table 2 panel A except that the job turnover rates come from the Longitudinal Employer Household Dynamics.

Table A7: Robustness to An Alternative Measure of Creative Destruction

VARIABLES	(1)	(2)	(3)	(4)
	Current ladder		Future ladder	
Job creation rate	3.906	3.647	3.934	2.508
	(0.689)	(0.722)	(0.739)	(0.609)
Job destruction rate	-1.741	-1.425	-2.299	-1.115
	(0.598)	(0.640)	(0.632)	(0.546)
Log of income	0.465	0.461	0.353	0.405
	(0.0888)	(0.106)	(0.0679)	(0.0788)
Additional MSA controls		x		x
Observations	358	344	358	344
R-squared	0.213	0.238	0.129	0.425

Note: Everything is similar to Table 3 panel A except that the job creation and destruction rates come from the Longitudinal Employer Household Dynamics.

Table A8: Allowing for a Non-linear Effect of Unemployment

VARIABLES	(1)	(2)	(3)	(4)
		Current ladder		Future ladder
Job turnover rate	0.599	1.251	1.245	1.685
	(0.361)	(0.382)	(0.385)	(0.294)
Log of income	0.342	0.158	0.181	0.274
	(0.0839)	(0.0862)	(0.106)	(0.0800)
Cubic polynomial of unemployment rate		x	x	x
Additional MSA controls			x	x
Observations	363	363	344	344
R-squared	0.100	0.303	0.348	0.495
p-value Job Turnover [1]= Job Turnover [2]		0.00		

Note: Everything is similar to Table 2 panel A, except that the unemployment rate is introduced in the regressions along with its square and its cube.

Table A9: Bartik (Predicted) Measure of Creative Destruction

VARIABLES	(1)	(2) Current ladder	(3)	(4) Future ladder
Job turnover	0.550	1.185	1.064	0.776
	(0.193)	(0.205)	(0.529)	(0.514)
Unemployment rate		-3.129	-2.178	-1.515
		(0.364)	(1.102)	(1.080)
MSA log of income	0.402	0.332	0.414	0.195
	(0.0303)	(0.0310)	(0.0376)	(0.0393)
MSA F.E.			x	x
Additional MSA controls	x	x	x	x
Year and quarter F.E	x	x	x	x
Observations	4,828	4,828	4,828	4,828
R-squared	0.179	0.200	0.325	0.257
p-value Job Turnover [1]= Job Turnover [2]		0.00		

Note: Everything is similar to Table 2 panel C, except that the direct measure of the job turnover rate is replaced by a predicted (Bartik-line) one. For more details see the end of Section 4.2 of the main text.

Table A10: Bartik (Predicted) Measure of Creative Destruction

VARIABLES	(1) Current ladder	(2)	(3) Future ladder	(4)
Job creation rate	11.40	10.36	5.722	5.140
	(1.153)	(1.126)	(1.070)	(1.089)
Job destruction rate	-10.89	-10.40	-4.438	-4.595
	(1.220)	(1.315)	(1.150)	(1.302)
Log of income	0.390	0.403	0.257	0.191
	(0.0300)	(0.0375)	(0.0304)	(0.0392)
MSA F.E.		x		x
Additional MSA controls	x	x	x	x
Year and quarter F.E	x	x	x	x
Observations	4,828	4,828	4,828	4,828
R-squared	0.200	0.342	0.146	0.261

Note: Everything is similar to Table 3 panel C, except that the direct measures of the job creation and destruction rates are replaced by predicted (Bartik-line) ones. For more details see the end of Section 4.2 of the main text.

Table A11: Test of prediction 4

	(1)	(2)	(3)	(4)
VARIABLES	Future ladder		Ladder difference	
	Panel A: Interaction with Age			
Job creation rate	1.071	0.949	-0.005	-0.343
	(0.207)	(0.221)	(0.347)	(0.369)
Job creation × Age	0.024	0.028	0.023	0.027
	(0.014)	(0.016)	(0.015)	(0.015)
Age	-0.0328	-0.0350	0.0621	0.0592
	(0.003)	(0.003)	(0.004)	(0.004)
Additional MSA controls		x		x
Individual controls	x	x	x	x
Year and Month F.E.	x	x	x	x
Observations	544,228	450,908	543,817	450,554
R-squared	0.094	0.095	0.071	0.071
	Panel B: Interaction with Education			
Job creation rate	1.033	0.919	-0.0343	-0.346
	(0.209)	(0.222)	(0.355)	(0.376)
Job creation × Education	0.137	0.181	0.242	0.290
	(0.072)	(0.080)	(0.104)	(0.110)
Education	0.0595	0.0535	-0.0201	-0.0263
	(0.013)	(0.015)	(0.019)	(0.021)
Additional MSA controls		x		x
Individual controls	x	x	x	x
Year and Month F.E.	x	x	x	x
Observations	544,228	450,908	543,817	450,554
R-squared	0.093	0.094	0.068	0.068
	Panel C: Interaction with Income			
Job creation rate	1.094	0.967	-0.0189	-0.357
	(0.208)	(0.222)	(0.351)	(0.372)
Job creation × Log income	0.557	0.655	0.836	1.031
	(0.177)	(0.192)	(0.264)	(0.263)
Log income	0.224	0.200	-0.212	-0.245
	(0.030)	(0.033)	(0.041)	(0.045)
Additional MSA controls		x		x
Individual controls	x	x	x	x
Year and Month F.E.	x	x	x	x
Observations	544,228	450,908	543,817	450,554
R-squared	0.093	0.094	0.070	0.070

Note: Everything is similar to Table 3 panel B except that the job creation and destruction rates are interacted with some proxies for the individual's discount rate: age in panel A, number of years of schooling in panel B, and log of income in panel C. All these proxies are demeaned. We don't report the interaction coefficient and the main effect for job destruction as the interaction of interest is the job creation one (see main text).

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