

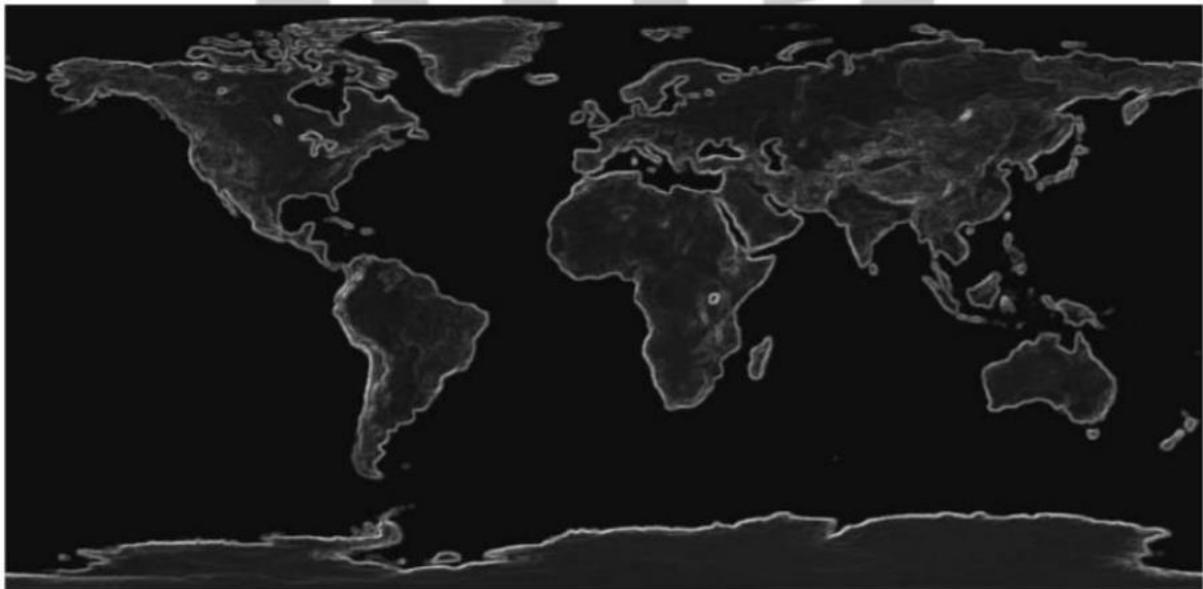
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# **THE ART OF AVANT-GARDE ECONOMICS: CONSUMER EXPECTATIONS AND CREDIBILITY**

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Convergence of fiscal policy and consumer behaviour

*Veritas et Aequitas*



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*“So much of human behavior - political, religious, and financial - can be explained by the fact that we want to think the best of ourselves and don’t want to work very hard to do it.”*

- Daniel Crosby, *The Behavioral Investor*

The current COVID-19 pandemic has produced numerous precedents to kick start world economies under a deep recession. Germany, in its € 130 billion stimulus package, announced a temporary drop in VAT starting July 2020 till the end of the year. The tax cut is aimed to stimulate aggregate spending under expected positive inflation in the future until VAT rates revert back to initial levels. Expecting a future price rise, consumer spending shall be stimulated to exit an economic slump. The usage of unconventional fiscal policy aims to directly target the behavior of the economic agent. Here, the consumer’s expectations of key economic variables are stimulated, in line with the targets of the government. Monetary Policy, on the other hand, uses (Odyssean) forward guidance to impose its intentions of future policy rate changes and provide assurance to the economy which affects current spending. The tools aforementioned are employed when conventional fiscal policy is debt-constrained, or when nominal interest rates are close to the Zero Lower Bound. The contents of this article restrict itself to discuss core concepts surrounding such policies and their effectiveness at large.

The Rational Expectations and Efficient Market Hypotheses (REH+EMH) provide a widely acclaimed foundation for modern macroeconomics and policymaking. These hypotheses provide a reasonably fair and empirically proven condition for expectation formation, where the former implies that consumers internalize all exogenous factors of demand shifts and constantly re-optimize their decision sets and the latter propounds the propagation of accurate market signals that help stimulate the flexibility of capital constraints and also provides for the formulation of asset prices from fundamentals, or from intrinsic value. If REH+EMH exists in perfect conditions, exuberance and arbitrage opportunities dissolute, and all economic agents earn no super profits apart from average market profit which eliminates surprise deviations. It is the recognition of limited cognitive capacity to fully understand the model that invokes bounded rationality and the usage of heuristics to form iterative learning mechanisms for an extrapolative agent to mimic the fundamentalist, especially in a classical liberal world. REH now finds itself in the core philosophy of New Keynesians and the neoclassical synthesis, which also recognizes micro-foundations of intertemporal utility, crucial to the intended impact of modern fiscal policies to drive the economy.

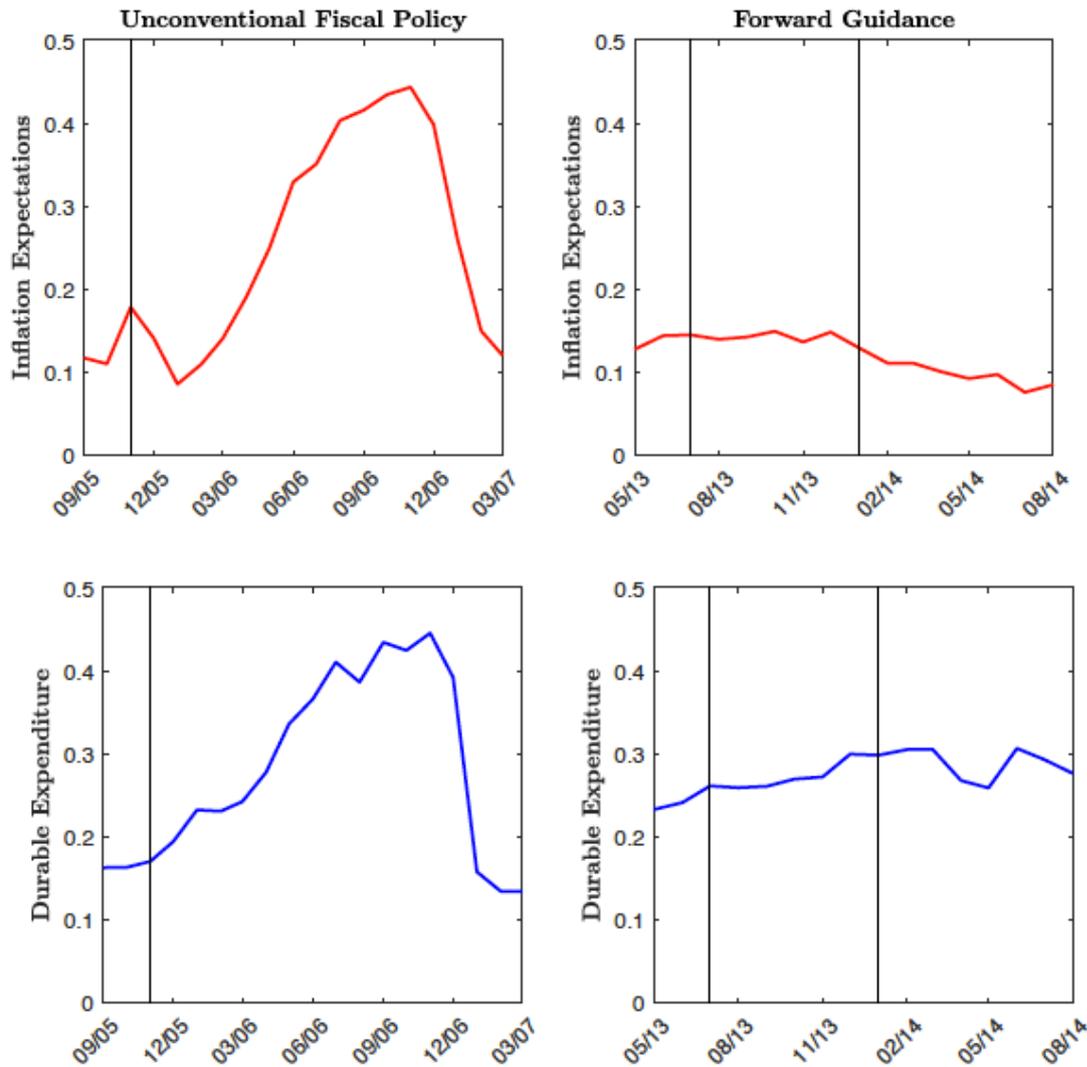
Conventional fiscal policies that use a variety of tools are largely constrained by public debt concerns. Stimulating spending by lowering key tax rates and assuming an unbalanced budget, creates deficits for the government which can only be financed through a future tax rise or by maintaining a consistent primary deficit until the debt is repaid. Stabilizing debt, on the other hand, leads to permanently higher taxes. The Barro-Ricardian Equivalence explains how private savings rise commensurate with an initial decrease in public savings aimed to stimulate spending. Since taxes in the future are expected to rise, overall savings remain unchanged and capital formation takes a hit in the long run. Discounted Utility models of intertemporal choice and risk aversion provide some answers that explain how interest rate stimulation might be rendered ineffective in a deep recession. Keynesian Regressive Expectations assume independent and normally distributed critical interest rates of indifference between saving and consumption, the aggregation of which isolate the extremes of said rates, analogous to



reservation prices. The minimum critical interest rate here is a lower bound of the demand for real money balances which remains independent and exogenous from a traditional money supply disequilibrium. Speculative money demand theories developed by James Tobin incorporate bond holdings and an independent and identically distributed (*i.i.d*) capital gain of bond dividends. Here, well behaved convex preferences, risk aversion, and a diversified portfolio composed of bonds and money demand interact with the interest rate. Thus, bond holdings asymptotically approach total wealth as interest rates rise. The locus of optimum portfolios draws out a smooth curve that captures progressively decreasing increments of money demand as interest rates rise, proving the existence of a Zero Lower Bound (ZLB).

Policymakers can announce either a temporary drop in tax rates (in this context) or a future hike. Both alternatives have similar dynamics, the main resultant being an increase in future inflation expectations during a time period where nominal interest rates remain static close to ZLB. From the Fisher Equation <sup>[1]</sup>, perceived real interest rates decline due to positive inflation, and current consumption rises as the willingness to save falls, explained by the Euler Equation <sup>[2]</sup>. The latter policy alternative, i.e. a future rate hike, should be made budget neutral by also incorporating an income tax cut whereas the former policy creates budget deficits. The element of surprise is crucial to explain the momentum of the policy measure with regards to its intended effects. Under rational conditions, agents will incorporate government policies within their forecasts of (in this context) inflation hikes. If they fully anticipate the intended effects of a policy change, they shall re-optimize and dissolve any time lags of adjustment. Thus, the Policy Ineffectiveness Proposition unfolds which professes the existence of “shocks” that can stimulate economic variables (Robert Lucas).

Inferences from D’Acunto et al. (2020) using data from the harmonized European Commission Consumer Confidence survey for Germany provide an insight into the effectiveness of an unconventional fiscal policy measure executed in 2005, and forward guidance measures in 2013-14. In November 2005, the German government unexpectedly announced a rise in VAT from 16% to 19%, but the increase was only effective in January 2007, and hence, the government engineered a path of future price increases. The right panels plot these measures for the first two explicit forward guidance announcements in July 2013 and January 2014. The top two panels mark the fraction of consumers expecting a future price hike, and the bottom panels represent durable spending patterns. Contrary to theoretical conclusions, the proportion of inflation expectations and expenditure on durables remained fairly constant in the case of forward guidance, whereas it shot up as theorized for fiscal policy. Average treatment effects aimed to isolate heterogeneous demographics and to assess counterfactuals matched German households with general European consumers, revealing significantly identical results.



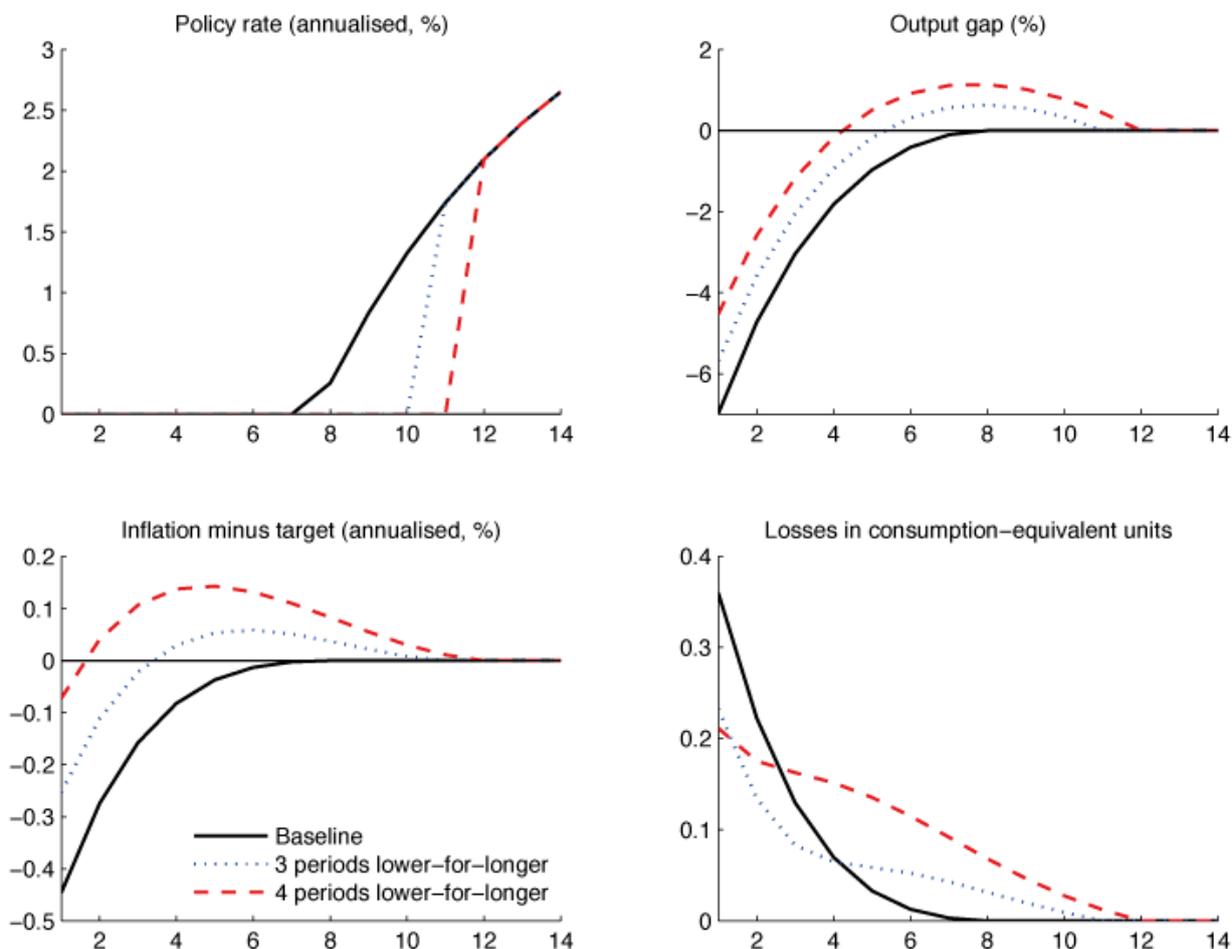
*D'Acunto et al. (2020) Inflation Expectations and Durable Spending in Germany*

*Vertical solid lines indicate the onset of the policy measure (From voxeu.org)*

Monetary policy and in particular, forward guidance, face time inconsistency which counters its effects from full realization. Forward guidance is also termed Odyssean, a metaphor for Odysseus and his attempts to direct his crew to stabilize the course of the ship in wake of the Sirens, as he is tied to the mast. A commitment to hold on to lower interest bounds for a longer time leads to inflation overshoot in the future. The costs of higher inflation may look insignificant during a deep recession, but when forward guidance takes form, an economic slump is in the past, and price hikes will be a costly affair. If a government argumentatively refuses to negotiate with hostage-takers, it will have to negotiate nevertheless if such a situation unfolds. Assuming the existence of a short term trade-off between inflation and unemployment (The Phillips Curve), attempts by monetary authorities to reduce unemployment but only by increasing inflation may be rendered ineffective if workers' inflation expectations match with the policy at hand. Thus, they re-optimize and the economy faces higher inflation. Commitment to a particular policy rate targeting and removing the option to deviate in the future shall establish the credibility of the monetary authority.

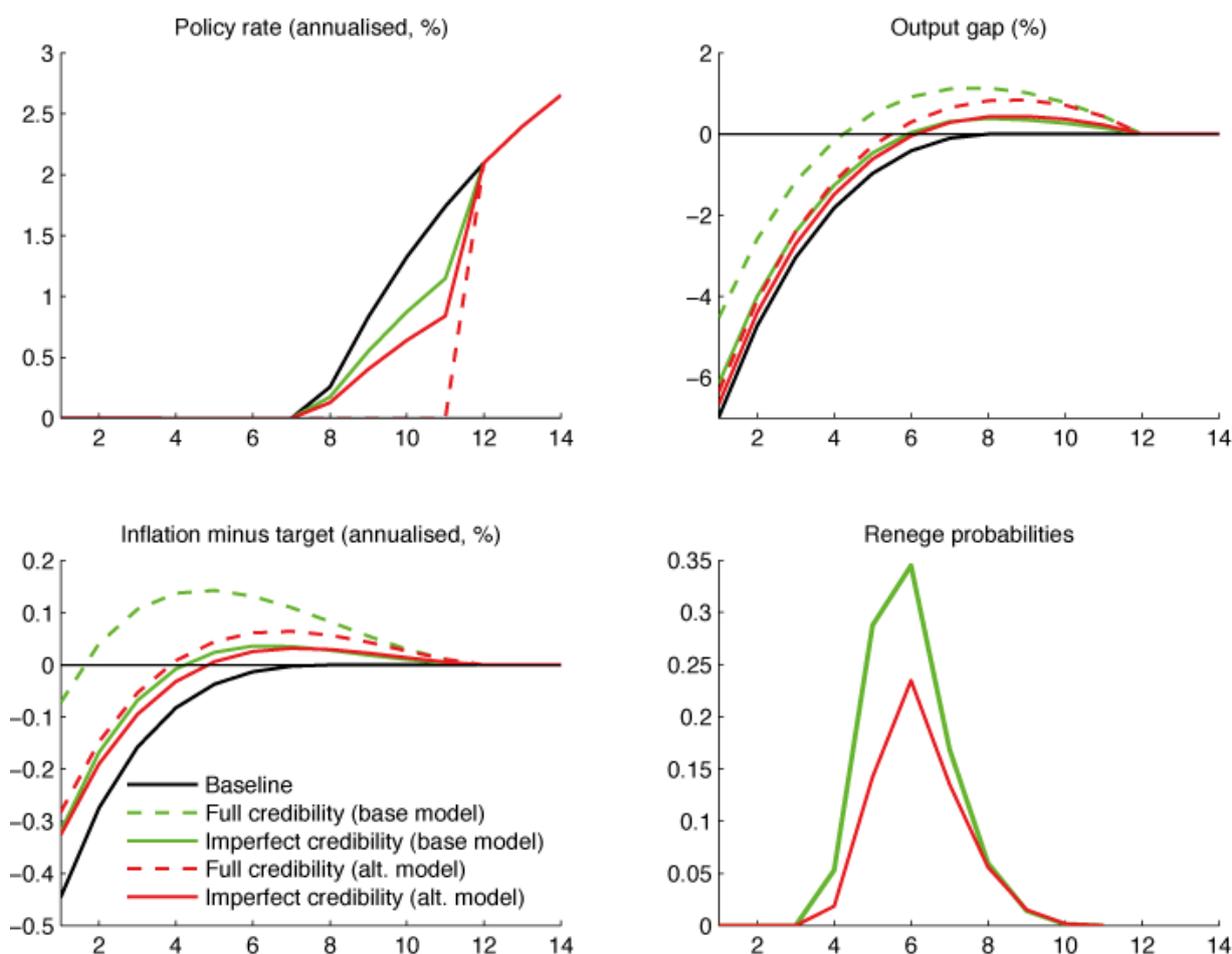


Forward guidance measures insinuate a paradox, where greater the credibility, the lower is its effectiveness. Haberis, et.al (2017) illustrate this puzzle by simulating a deep recession, driving interest rates to ZLB. Here, separate measures under perfect and imperfect credibility lead to changes in inflation, output gap, policy rates, and consumer spending.



*Forward Guidance with perfect credibility. In the baseline (black lines), interest rates are lowered to the ZLB, where they remain until quarter 7. The other two lines show the effects of two fully credible forward guidance policies – a promise to hold interest rates at the ZLB for an extra three quarters (blue lines), and a promise to hold interest rates at the ZLB for an extra four quarters (red lines). (From vox.eu.org)*

The political economy of the policy instruments discussed impose various signals that reorient the behavioral effects intended. Games between policymakers and consumers along with ideological competition among the former influence the milieu of economic stability and the path is chosen to achieve it. In a democratic framework, voters are myopic and are a constant target for potential political representatives to market power. Activities that influence electoral results take advantage of time lags in policy execution and realization to such an extent that purported inflation easing, fall in unemployment, and a favorable GDP hike is often experienced close to an election year. Among lawmakers, wars of attrition run rampant to satisfy the party's vision with the aims of the policy at hand. Under such stressors of political games, the socioeconomic and demographic environment of the public differentiates the positive from negative, reinforces normative economics, and harbors the capacity to create the rewards of fiscal prudence and responsibility.



*The effects of a forward-guidance announcement to hold interest rates at the ZLB for an extra four quarters are shown for the base model (green lines) and an alternative model in which demand and inflation are less sensitive to forward guidance announcements (red lines). In both cases, the dashed lines show the full-credibility case and the solid lines show the imperfect-credibility case. The bottom right panel shows the per-period probability that the policymaker reneges on the announced promise in the imperfect credibility case. (From voxeu.org)*

As theorized, the effects of a longer commitment to hold the ZLB results in a more dynamic reaction. Deviations of inflation from the target and output gap from normal overshoot in subsequent quarters of the policy announcement. An alternate model that includes a probability to renege on the policy measure, i.e. with imperfect credibility shows higher effectiveness with respect to output and inflation gap stability. Thus showing that a more powerful policy is likely to be accompanied by a less credible promise.

The usage of unconventional policies are relatively nascent or negligible in its explicit popularisation in India. However, the Monetary Policy Committee frequently uses forward guidance especially in the aftermath of the recent pandemic, along with a halt to deficit financing post the last decade of the 20th Century. Fiscal prudence, at least on paper, has witnessed beautiful compliance in terms of the Fiscal Responsibility and Budget Management Act, 2003 (FRBM). A heavy reliance on indirect tax revenue that shot up to 50 percent of gross tax revenue in FY2019 has also snowballed into combined customs, VAT, and excise to



reach 10.5 percent of GDP. The permanent nature of cesses is a point of contention and debate. Although recent (conventional) fiscal stimuli has resulted in the Finance Minister invoking a breach in the permissible limit of fiscal deficit (percent of GDP) owing to emergency concerns, possible pathways to utilise indirect GST brackets to initiate spending remains a lucrative idea.

Notes:

1. The Fisher Equation derives a relationship between nominal interest rates adjusted for inflation to arrive at real return in purchasing power terms.

A \$1 bond with nominal interest rate  $i_t$  shall yield  $(1 + i_t)$  in period  $t + 1$ . If inflation is expected to be  $\pi_{t+1}$  in that period, the present discounted value adjusted for expected inflation yields the real return (interest rate)  $r_{t+1}$  :

$$(1 + r_{t+1}) = (1 + i_t) (1 + \pi_{t+1})^{-1}$$

Solving for the nominal interest rate, we have

$$(1 + i_t) = 1 + r_{t+1} + \pi_{t+1} + (r_{t+1}) (\pi_{t+1}) \approx r_{t+1} + \pi_{t+1} + 1$$

And hence,

$$r \approx i - \pi$$

2. The Euler Equation is a first-order differential equation describing the stability path of intertemporal and dynamic utility maximization by equating marginal costs with marginal benefits. Consider an infinitely-lived agent choosing a control variable ( $c$ ) in each period ( $t$ ) to maximize  $\sum \beta^{t-1} u(c_t)$ , where  $u(c_t)$  is a payoff function, or instantaneous utility with  $u' > 0$  and  $u'' < 0$ .  $\beta$  is a discount factor,  $0 < \beta < 1$ . The agent faces a present value budget constraint:

$$\sum R^{1-t} (c_t) = W$$

Where  $R = 1 + r$  is the gross interest rate and  $W$  is exogenous wealth.

Using Lagrangian optimization, if a time-path of the control is optimal, a marginal increase in the control at any  $t$ ,  $dc_t$ , must-have benefits equal to the cost of the decrease in  $t + 1$  of the same present value amount,  $-Rdc_t$ :

$$\beta^{t-1} u'(c_t) dc_t - \beta^t u'(c_{t+1}) Rdc_t = 0$$

The Euler Equation follows from the above,

$$u'(c_t) = \beta R u'(c_{t+1}), t = 1, 2, 3 \dots$$