

A Pitfall of New Growth Theory: Rhetoric, Rent Seeking and the Semi-Informed Voter

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New Growth Theory, or endogenous growth theory, provides economists with a more complete way to systematically investigate economic growth, as it focuses on the endogenous nature of growth due to positive externalities in knowledge (Romer, 1986; and Solow, 1994). Although a greater understanding of the importance of technology utilization in growth theory is laudable, New Growth theorists can provide intellectual ammunition to those willing to misuse the theory as a public-interest veneer over their rent-seeking activities.

Broadband providers, NASA, software companies, educators, and even stem-cell researchers have asked for and received government benefits under the auspices of New Growth Theory. Although New Growth Theory may present a theoretical reason for government interference in the technology sector, government agents may lack the knowledge or the incentives to deal with these externalities. Policy-oriented economists must be cautious when recommending government intervention, regardless of how reasonable intervention may seem. New Growth Theory, like many other reasonable sounding arguments, can be used to obscure rent seeking from semi-informed voters.

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Differences between Classical and New Growth Theory

Classical Growth Theory

Classical Growth Theory suggests that capital is the answer to economic growth, but empirical evidence has found this theory wanting. In particular, classical growth theory suggested that the wealth of countries should converge to the same per capita GDP over time. Growth in rich countries should slow as the marginal productivity of capital diminishes, while capital inflows should speed the growth of poor countries. The real world shows little evidence of convergence, however, so economists have sought new theories (Easterly, 2002).

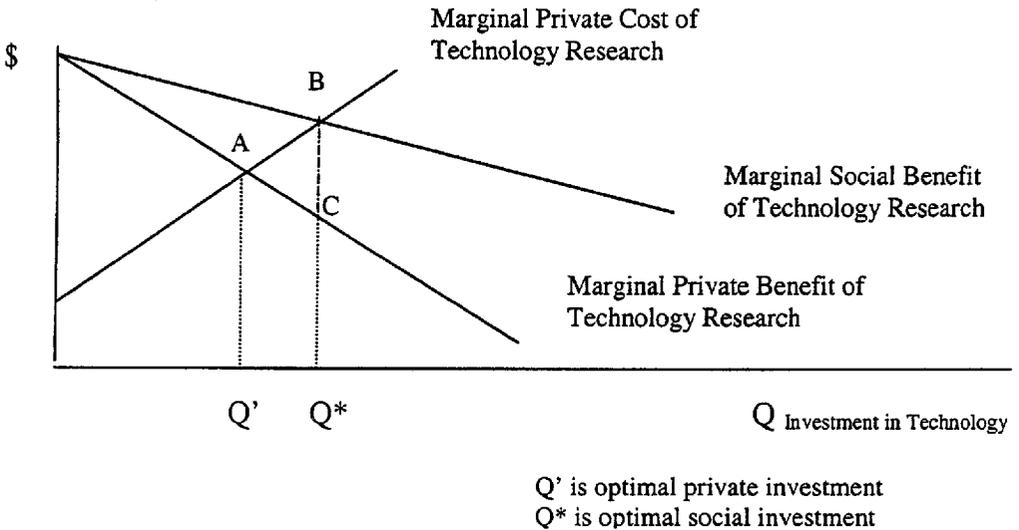
New Growth Theory

New Growth Theory focuses on a country's ability to utilize technology, which the theory posits is characterized by numerous positive externalities. When someone creates a new product or process, others not only copy it, but also use it as a springboard for other ideas (Easterly, 2002). Innovators often fail to see all the benefits of their ideas. Increased productivity raises wages in the long run, and higher wages lead to increased demand, which results in more capital and more R&D. Hence, in New Growth Theory, more capital is the result, not the cause, of increased growth.

The theoretical ammunition that New Growth Theory provides appears especially applicable to the technology sector. New technology and knowledge provide spillover benefits, or positive externalities, which are the strongest impetus for growth (Romer, 1986). This growth-causing new technology is largely the result of deliberate investment in a search for new technology (Grossman and Helpman, 1994; Schumpeter, 1934; Solow, 1970; Romer, 1990; and Aghion and Howitt, 1992). Because technology firms claim to spend a much greater percentage of their revenue on deliberate research and development than do firms in other sectors, in New Growth Theory the technology sector is a primary impetus for growth (Romer, 1986 and 1990). As such, technology companies can use the theory as rhetorical

ammunition when they petition for government subsidies and inclusion in special programs. The danger of New Growth Theory is that if government could just spend enough money jump-start starting technology firms, those firms would continuously build a vibrant economic sector.

Figure A



As illustrated in Figure A, technology firms will invest in R&D to optimize their marginal private benefit (Q'). This is an under-investment, according to standard welfare theory, because firms do not consider the social benefits of their research. Firms only produce those new technologies where they expect to reap benefits that recoup the costs, even if there is only a penny of private, appropriable benefit

while ignoring of a dollar of social benefit. When private and social benefits diverge, the social optimum (Q^*) will not be reached. This provides an argument for government subsidies for private technology research.

Empirical Shortcomings of New Growth Theory

While this paper focuses on how firms can use New Growth Theory to disguise rent seeking from semi-informed voters, the theory also has empirical shortcomings. Studies have indicated that the theory of significant spillover effects also has flaws. DeLong and Summers (1991), for example, found that machinery investment played a large part in which countries' economies grew. But countries that could neither import nor create large amounts of machinery were later found to have other problems such as import controls and other bad policies (Pack 1994). It is these problems that cause low growth, not a lack of spillovers from imported technology. Technology was also mismeasured. Some R&D was defense related, and defense technology tends to have much less spillover simply because security clearances make it less available to others. Early studies showed that machinery imports were important for economic development may be flawed because countries with small machinery inputs often have import controls and other bad policies. The other bad policies matter so the marginal impact of additional machinery imports may not as valuable. As we improve our data and add years to our studies, New Growth Theory looks weaker instead of stronger.

In regards to economic development, New Growth Theory suggests that countries with good institutions should be able to benefit from technology transfers. As such, groups such as the IMF, the World Bank, and even the U.S. government have promised to change how they distribute international aid by shifting from countries with strategic military and political values to countries that have good institutions that will encourage technology development with positive externalities. Aid provided in this form does not seem to help very much (Easterly, 2002

and 2003; Boone 1996). Furthermore, the benefits of aid do not appear in National Income Statistics. This is a real quandary for economists who would like to help people in developing nations. While the organizations that receive and distribute aid have not successfully used New Growth Theory to convince donors of their need, the failings of New Growth Theory suggest that any attempts to use New Growth Theory when fundraising should be viewed with some suspicion.

Investment and technology inputs alone do not necessarily lead to more growth. The former Soviet Union is a prime example of a country where there was lots of technology input, but the country was still relatively poor. Education in sub-Saharan Africa is an example where inputs, years of education, which should help countries utilize technology, have little to do with outputs (Easterly, 2002). When economists try to control for all the factors important in New Growth Theory, "Distance from the equator is the single strongest predictor of long-term economic success in our specification" (Hall and Jones, 1997, 176. See also Sala-i-Martin, 1997). That distance from the equator is the largest predictor of economic success suggests that neither research and development nor technology transfers are the most important factor in economic development at least across countries.

A Potential Danger of New Growth Theory

External benefits from research constitute a public good. If R&D will be under-provided due to a lack of private benefits, Pigovian subsidies (Pigou 1920) can remedy the matter. The government can pay the firm a subsidy corresponding to the vertical difference in Figure A between the firm's private benefits and the social benefits (the difference between points B and C). Alternatively, government can encourage increased investment through tax code distortions or direct funding of research by government agencies such as the NSF, NASA, and DOD. However, the knowledge problem (Mises, 1977; and Cordato, 1995) and the rent seeking problem (Coase, 1960; and Buchanan 1969) hamper the implementation of this solution. Black

(1969) and Arrow (1962) show that a rational social welfare function cannot exist. Mises (1998) shows that even if it did exist, the government could never maximize it because government lacks the knowledge to do so. We will see that the Pigovian solutions are faulty on many grounds and that rhetoric will be used by rent seekers.

The Rent Seeking Problem

The public goods argument for government intervention is long established, though harshly criticized, in the literature (Cowen and Crampton, 2003). In most cases, “public goods” arguments serve as public-interest veneers for the activities of private interest groups. Consequently, the public choice critique is more relevant here. Interest groups will organize to get technology R&D subsidies (Tullock, 1967). Rent seeking will proceed until the private costs equal the expected private gain. Because rent seeking uses valuable resources, it will dissipate some of the public benefits that might accrue from increased investment in technology.

Under traditional analysis, rent seeking should proceed until the private cost equals the expected return. But once there is government acknowledgement of positive externalities arising from the technology sector this will simply signal to firms that the rent seeking doors are wide open. There are two reasons for this. First, there is a behavioral explanation; the idea that people’s perspectives are framed by the way information is presented to them. In a world where people see more rent seeking, they consider rent seeking more (Kahneman and Tversky, 1984). Second, there is an institutional or Olson perspective once rent seeking takes over, any institutional constraints that may have minimized rent seeking are removed because they don’t have the support (Krueger, 1974; Olson, 1996; and Greif, 2006). Hence it is very possible to get a whole new equilibrium with significantly lower GDP and standard of living.

The Importance of Theoretical Ammunition

Both the budget and the effect of the Downsian median voter constrain politicians. Funds spent on a technology program are necessarily money not spent elsewhere. In a pure rent seeking model, theoretical ammunition is not needed (Tullock, 1967); politicians simply provide patronage to the interest group providing the highest bribe. In more realistic models, however, rhetoric and moral suasion affect the position of the median voter and the voters' resistance to new taxes. Voters are rationally ignorant of details, but they are still voting on overall programs (Tollison and Wagner, 1991). Voter constraints that have been changed by rhetoric allow elected politicians to allocate resources to different programs: those with good rhetoric.

Voter preferences do not necessarily correspond to their economic interests, as voters have an ideology about what is "right" or "moral" (Dixit and Londregan, 1995; see also Becker, 1983, 392). Experiments suggest that people will pay a monetary penalty to gain more "fairness," punishing those who do not provide an equitable outcome (Roth 1995). They also vote "expressively" to satisfy emotional needs and express their opinions. Voting is an ideal way for people to do this because in most elections voting morally instead of economically is costless due to the very low probability of being the marginal voter (Brennan and Lomasky, 1993).

Individual voters, however, often have conflicting and changing views; they seem to want what is "right," but do not know precisely what that is. While voters sometimes have a specific philosophy about one or two issues, they can easily hold contradictory views about other issues. For example, some voters are opposed to globalization but want the working poor in developing countries to have good jobs. Other voters want both a Christian America and separation of church and state. These voters often grab onto the view that has the best speaker, sound bite, or catchphrase at the moment (Caplan, 2001a and 2001b).

Caplan (2003) provides an interesting behavioral component of rhetoric. In behavioral economics, cognitive bias is the idea that people

have systematic bias on a variety of problems. Caplan argues that once government intervention in the market has begun, voters' rationality actually worsens. A cognitive bias can occur among voters. "When economic outcomes are bad, people's economic beliefs perversely become less—not more—realistic. Rather than 'learning from their failures,' they become more committed to making failed policy work, one way or another" (196). Voters who have been fooled into supporting bad policy have a tendency to let the poor results of a bad policy reinforce their desire for the bad policy. Semi-informed voters who are fooled by rhetoric are more likely to want to be biased in the future, to their detriment (see also Alesina and Scheuendeln, 2005).

Failed policies should result in calls for new policies, but since voters are poorly informed, they often want more of the bad policies. People who hear emotional appeals often believe that the policies were not bad but rather did not go far enough. For example, during the Great Depression, the National Recovery Act and other failed policies led not to calls for more markets, but rather calls for even more government intervention (Caplan, 2003). In this situation, societies would be better off if voters had never heard of these bad policies. In the case of New Growth Theory it might be better if voters never hear about positive externalities associated with technology. Because voters poorly understand positive externalities, they allow increased rent seeking. Bad results from poorly spent government money in R&D can lead to more support for bad R&D programs.

When the costs of systematic bias are low, bias should be common. The cost of biased voting is almost zero to the individual voter (Downs, 1957) but costly to society as a whole. As such, voters do not have any incentive to learn to perceive when government is beneficial and when it is not and can be easily swayed by rhetoric and appeals to ideology. If voters were perfectly informed on policy issues, education would be unnecessary, and if voters were perfectly irrational, education would be pointless. Yet, voters often vote based on a mixture of a tiny bit of learning and some sound bites, rhetoric, and ideology,

which they sometimes use to decide which “team” they want to root for and vote accordingly (Brennan and Lomasky, 1993). New Growth Theory gives the technology sector more ammunition to appeal to voters. Unfortunately, this appeal only allows voters to harm themselves (Dougan and Munger, 1989).

Politicians do not need any good facts or studies to support technology transfers they merely need a good story: something that sounds plausible to voters. Politicians need a story that keeps voters from being suspicious and finding out the facts for themselves. New Growth Theory provides just such a story. There is a real theory behind it. There are real studies in support of New Growth Theory, and there are real empirical shortcomings. But voters do not read studies. If voters were perfectly informed, they would know rent seeking for what it is. If voters were completely clueless, then they would just allow more efficient bribes. But voters are semi-informed. They get riled up when they see obvious graft (Brennan and Lomasky, 1993). New Growth Theory allows politicians to replace obvious graft with less obvious graft. Every state has an office of technology and economic development. Technology incubation areas are scattered across the states in the most unlikely of areas-for actual technology development. It would be more efficient if the interested parties just took the money instead of pretending to provide economic development.

The Rent Seeking Spiral

In a static theory, government intervention, whether subsidies or other industrial policy, can improve social welfare by setting marginal private cost equal to marginal social cost. A more dynamic understanding of the economy shows that interventionism itself costs society in a variety of ways (Murphy, Schliefer, and Vishny, 1993). Intervention tends to organize and strengthen interest groups. The incentive to create is diminished, and the incentive to become politically powerful increases. Interest groups find that lobbying the government is profitable even though it decreases the gross domestic product. As a

result, the government transfers the wealth of productive members of society to the politically powerful.

Not only do subsidies and special programs encourage entrepreneurs to focus on lobbying instead of creating, Easterly (2002) argues that a downward spiral occurs because all sorts of other bad policies follow, but we should at least expect a lower equilibrium. While it might make sense for government to encourage the creation of new technology because there are positive externalities, subsidies have secondary costs. People will naturally try to get around an intervention in the market, which leads to more intervention. Regulators must then intervene in the market again to protect the first intervention (Mises, 1977). Any calculation of benefits from Pigovian subsidies must include the potential costs of continuous intervention. While people will innovate to get around the regulation, that innovation will tend to be second best.

Pigovian public finance would suggest directly or indirectly subsidizing the technology sector to increase social welfare. In reality, regulatory protection for favored firms often occurs instead. Protection requires no expenditures, which makes it easier to pass on costs to voters, the consumers. Subsidies attract new entrants to technology markets. This is good for economies hoping to expand their technology sector, but bad for firms already in the sector. Early entrants will thus lobby for rules that increase the cost of doing business for late arrivals. So far internet, stem cell research, computer chip, and nanotech companies have not yet asked to be regulated so that they can form cartels or avoid new competition, a strategy adopted by many old-economy firms. Economists and policy analysts from a wide range of ideological perspectives agree that firms often benefit from regulation because it asymmetrically raises costs to smaller firms and prevents market entry (Yandle, 1989; Portne, *et al.* 2000; and *The Economist*, 1994). Hence, interest groups lobby the government for specific rules that reduce the property rights of firms but make it easier to form cartels. Voters are only partially cognizant of how these laws work.

A wide range of special projects currently involve the technology sector. Policy analysts have begun referring to these as “cyberpork” (Thierer, Crews, and Pearson, 2002). Firms often present projects as being growth or security enhancing, but the ratio of pork to truly useful projects is likely high because information asymmetries make determining the legitimacy of these projects difficult. As such, budget overseers are unable to separate the wheat from the chaff and end up providing too much funding (Niskanen, 1971). Even programs that seem to have positive externalities will tend to be too large such that marginal cost exceeds marginal benefits.

Companies in the tech sector obviously think that rent seeking will be beneficial to them privately and not just for the public welfare. In 2005, Microsoft and its executives spent \$8.7 million on lobbying. In the 2004 election cycle Microsoft gave \$3.3 million to PACS and individual candidates (Center for Responsive Politics, 2006). While Microsoft tends to work alone, other technology companies have formed lobbying groups such as TechNet and the United States Service Providers Association. Other groups have worked to ensure that the Department of Defense can purchase technology outside normal channels (Lemos and Yamamoto, 2004). In 2005 the communication/technology companies gave a total of \$308.5 million to PACS and candidates up from \$285.1 million in 2004 (Political Money Line, 2006).

Companies that provide high-speed internet access have extensively lobbied for subsidies using concepts from New Growth Theory to provide moral cover for their rent seeking (Atkinson, *et al.*, 2002; Crandall and Jackson, 2004; Crandall *et al.*, 2001). Their argument is that broadband Internet access provides people with a better way to learn about and utilize new technology. People who cannot utilize new technology will be left behind economically and will be unable to spur the creation of further technology. Future economic growth will be hurt because individuals, particularly those in rural areas where Internet access is expensive, will under-invest in broadband. Hence, the

potential externalities from rural broadband will never occur (USDA, 2000).

Another area where government technology grants are supposed to infuse new growth into an economy is stem cell research. Proposition 71 was a California voter initiative that creates a California Institute for Regenerative Medicine spending three billion dollars over the next ten years. The proposition was strongly favored by venture capital companies and biotech companies (Knowledge@Wharton, 2004). These companies argued that there is too much uncertainty and too many technology externalities for private firms to do stem cell research on their own. Proposition 71 passed easily in part because voters were led to believe that California would receive health care savings, royalties, and tremendous economic growth. The economic growth supposedly comes from the way that technology creates a self sustaining spiral. Unfortunately for the semi-informed voters of California, this is not the case.

Rent Extraction²

McChesney (1997) defines rent extraction as when legislators threaten to pass costly legislation to coerce interest groups to cough up campaign contributions. This adds to the funds that interest groups spend on lobbying and exacerbates the rent seeking cycle. Rent-extracting legislation must have the veneer of acceptability, however. A legislator looks greedy to voters if he simply says, "Give me money, or I'll tax and regulate you to death." But a legislator's greed goes over semi-informed voters' heads if he says, "I hope I don't have to tax you and force you to provide free access to your technology so that poor rural localities can experience economic growth." The veneer does not matter to the completely uninformed, but to the

²I am grateful to an anonymous referee who suggested that I add this section.

semi-informed voter New Growth Theory seems very reasonable. Consider Microsoft's large lobbying budget. Microsoft was not always a lobbying giant, however; in 1995 it had only one lobbyist, Jack Krumholtz. Bill Gates disdained lobbying and thought that corporations should not do it. When the Justice Department's Anti-Trust division filed its antitrust suit in 1998, Microsoft had to change tactics. Much of the early debate concerned the idea that Microsoft was "squashing innovation in technology, which would harm the economy's growth. The suit had almost nothing to do with economic growth, but it and anti-trust provided a veneer of respectability (Liebowitz and Margolis, 1999).

Public Attempts at Solving the Public Goods Problem of Technology

Since technology is endogenous, entrepreneurs must invest in research and development. The best argument for government intervention in the technology sector is that technology does not transfer freely. Public goods aspects of technology certainly exist, but they are often embedded within organizational structures and affected by social capabilities. In particular, spillover technologies are often geographically localized; people do not realize that someone in another setting has a technical solution to their problem.

This might seem like a perfect opportunity for government to step in and with its "infinite wisdom" see which technologies were being underused. Government could subsidize research and development that would have large positive externalities while leaving alone R&D projects with no externalities. It could tax those industries that did not embrace technology, or that embraced technology with negative externalities. Government could, in short, do all of the things that Pigou envisioned it doing. This is certainly the policy favored by budget-maximizing bureaucrats and companies that wish to collude with government approval.

Government is not infinitely wise. Governments do not have

a particularly good track record of utilizing technology before private industry does. Instead, government has a track record of massive waste and cost overruns. It is unclear how government would choose the R&D that will have significant spillover effects when the innovators themselves cannot make that prediction. The Pigovian idea that government can implement efficient taxes on negative externalities and efficient subsidies on positive externalities is criticized throughout the Austrian and environmental economics literature (Cordato, 1995).

New Growth Theory also posits that the greatest growth occurs when large parts of society are able to utilize new technology. Private R&D companies³ have every incentive to help people learn about and utilize their technology. The public may equate salesmen with unethical used car dealers, but the sales professional's job is actually to find people with problems and help them. He gets paid to do that, and as a result does a better job than any incentiveless bureaucrat could.

Companies and industries that are competing poorly like to use the government for protection. They lobby for tariff or non-tariff barriers to protect themselves from foreign competition, use government mandates to cartelize, and use imposed standards to impair new competitors in to bringing innovation to market. Moreover, government often subsidizes losers; companies that have failed to innovate receive tax breaks and bailouts to protect worker jobs. The relevant economic literature shows that governments are poor decision-makers when it comes to industrial policy (Zinsmeister, 1993).

Conclusion

Empirical evidence for New Growth Theory is mixed at best,

³The careful reader will note that I am assuming that R&D does not occur in a perfectly competitive environment where goods are priced at marginal cost. That makes sense to me intuitively and empirically. See also, Romer, 1990.

but policy makers are using it. In particular, the Bush administration has used New Growth to allocate foreign aid dollars. Many states are funding stem cell research because they are afraid that other states will outpace them economically if they do not get involved. Second, catchphrase theories that resonate with voters are always popular with elected officials. The average voter thinks he understands the “infant industries” or “unfair labor practices” arguments. He does not know much economics and is not statistically literate, so he is fooled by good rhetoric.

New Growth Theory, while powerful, provides certain rent seeking groups just enough ammunition to distract voters from a job that they are already woefully bad at: monitoring politicians. It also allows politicians to redistribute wealth under the guise of technology enhancement. As the U.S. economy increasingly relies on the technology sector for growth, politicians will experience increasing pressure to institute wealth redistribution programs toward the technology sector. These programs have been given the veneer of respectability by New Growth Theory but actually have all of the same old government failings.

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