ENVIRONMENTAL PROTECTION AND JOBS: A GUIDE TO THE BASICS

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Introduction

Environmental protection strategies of all stripes must constantly face the question of their effects on job creation and retention. The environmental movement has often been portrayed as being out of touch with economic realities and charged with promoting job destroying policies. Business people, labor leaders and politicians have worried about the effects of national environmental regulations on American "productivity" (output produced in relation to inputs such as capital, labor and energy), "competitiveness" (our international balance of trade) and "profitability" (rates of return). At the national level, the debate has been most acrimonious for environmentally sensitive industries (such as chemicals, petroleum and gas, fabricated metals) and for those federal lands policies affecting the extractive sectors (such as logging, grazing and mining). At the community level, employment effects frequently dominate debates over land use decisions: whether open space is to be protected or "developed"; whether public funds are to be used for greenways or highways; whether taxes on low-density development are structured to reflect the full costs of urban sprawl. At both the national and local levels, the policy debate has been characterized more by polemics and brickbats than by a well-grounded conceptual framework, careful empirics, an appreciation of the difference between long-run and short-run effects, and a sense of society's value-based choices.

In place of sober reasoning that organizes complex choices and traces consequences to a full range of criteria, two extreme views dominate this debate. At one extreme, optimists are proclaiming "win-win" as a dominant paradigm, believing that environmental protection and job creation, productivity and competitiveness will go hand-in-hand. At the other extreme are predictions of job losses, insults to productivity, and loss of competitiveness in international trade.

Amidst these two extremes, the terms of the debate need to be clarified. This Issue Brief will attempt to clarify the terms of the environment-employment debate from two different angles: the macro (economy-wide) level and the micro (local) level.

The Economy-Wide Level

The question here is whether environmental protection causes more jobs to be lost economy-wide than it creates, i.e. how it affects net U.S. employment. There have been several studies that address this question. Although "environmental protection" can take many forms, it is important to note that all of these studies are limited to the national regulations issued by EPA -- pursuant to a series of national environmental laws passed by Congress. Naturally, there can be many other forms of environmental protection, but most other policy instruments, particularly those that involve the tax system or land use decisions, are not within EPA's discretion. These alternatives include: taxes on emissions or certain inputs like energy or virgin materials, removal of harmful subsidies, performance agreements with various industry sectors, or changing policy-induced environmentally harmful inefficiencies in agriculture, transportation, industry and energy. While there is a wide array of choices for environmental protection, most environmental protection in the U.S. has been achieved with old-fashioned regulations. These studies address those national rules that have required industries to abide by certain pollution control standards.

On an economy-wide basis, over a half-dozen macroeconomic studies have shown the economy-wide effect of environmental regulation to be either negligible or slightly positive (more job gains than losses). Eban Goodstein of the Economic Policy Institute provides an exhaustive account of these studies in his policy paper, "Jobs and the Environment: The Myth of a National Trade-Off" [Goodstein, 1994]. Basically, the reason is this: any policy that creates spending will create jobs. Environmental regulations have induced spending on pollution control; and since the pollution control industry is about as labor intensive as industry as a whole, the balance sheet for "jobs created vs. jobs destroyed" is about even. Moreover, to the extent that some of these studies show that regulation can increase aggregate employment, this is typically due to environmental spending being either labor intensive (recycling and sewage construction) or requiring capital goods produced in this country (air pollution control equipment).

This means that job losses in such industries as high-sulfur coal mining and electric utilities are more than outweighed by gains in pollution control jobs. This is not to minimize the real suffering created in particular industries or communities by regulation-induced unemployment. A U.S. Dept. of Labor study shows that some workers (around 1,300 per year in recent years) have lost their jobs because of environmental concerns. [U.S. Dept. of Labor, 1990] Rather, it is to say that the job gains on the other side of the balance sheet roughly equal the losses.

Economist Robert Repetto at the World Resources Institute cautions against judging environmental policies by their effects on jobs: "Virtually any expenditure,

however foolish or unproductive, will generate employment. The Corp of Engineers generated employment when draining our nation's wetlands; it will create jobs again when restoring stream flows and undoing the damage its previous projects have done. That's close to digging holes in the ground and filling them in again, but it creates jobs." [Repetto, 1995]. Urging us not to over-interpret, either with joy or despair, the employment effects of particular environmental policies, Repetto insists that the real question is what we want the economy to produce. If we want unpolluted air, water and undegraded natural resources, the role of public policy is to achieve those goals with minimum costs and human suffering. Rather than protecting particular industries (such as high-sulfur coal mining or logging old growth forests) that are out of sync with the public's collective environmental goals, the job of government is to ease the transition --through retraining programs, incentives to greener industries, unemployment compensation -- toward more environmentally benign modes of production.

One final point in regard to macroeconomic studies: although they can yield important insights, they all suffer from the same defect shared by all highly aggregative studies -- overgeneralization. It is far more instructive to get down to specific choices, specific landscapes, peoples affected, and specific consequences.

The Local Level: Defining Winners and Losers

At the local or regional level, the jobs-environment question is very context-dependent and thus broad generalizations about job effects are less useful. No longer narrowly focused (like national rules restricting emissions to air or water or some other media), community-based environmental protection spans a huge gamut of concern. Public authorities face an enormous number of decisions that impact the environment: everything from local zoning, park land programs, open space acquisition, permitting and transportation decisions as reflected in "master plans" to the whole tax structure: property taxes, impact fees, utility fees. Private sector tools and practices are equally diverse: they include conservation easements, land trusts, participation in federal programs like Conservation Reserve, best management practices such as those promoted by the Natural Resource Conservation Service. Because the gamut of environmental policies is so broad, it is not advisable to draw conclusions, one way or the other, about the general connection between jobs and environment before studying the specific issue at hand.

To get a handle on the jobs-environment connection in a particular context, at least five questions will need to be asked:

1) Does the decision, action or policy cause money to be spent?
2) If yes, who must pay for it and what is the nature of the expenditure (large

capital project or a non-structural, labor-intensive project)?
3) What are the financial resources of this sector (producing firm, consumers, group of firms) that must pay the cost? What are the technological resources to adjust to this change?
4) What are the linkages between the most directly affected sector/firm and other "downwind" economic interests? How are the "downwind" parties affected?
5) Finally, is there a major difference between short-run and long-run employment effects?

First, as a generalization, those policies or decisions that cause money to be spent will tend to have the highest job-creation effects; those that prevent money from being spent or somehow reduce spending will not measure up well on the job scorecard. In addition, when money is spent on more labor-intensive pursuits (e.g. stream restoration), job creation numbers go higher. (Some environmental decisions will not have obvious consequences in terms of immediate spending. Buying land or conservation easements to put in a land trust merely effects a transfer payment from one party to another. As a result, the "economic boost" to the community will hinge upon the spending choices made by the party receiving new money.) If the area of concern is simply local, then a second-order issue must be addressed: whether expenditures benefit local people. Certain techniques from the field of regional economics can be used to determine what proportion of a given expenditures benefits local residents. By breaking down an expenditure into its various components (a schedule of "final demand") and gathering the regional purchase coefficient (RPC) for those components (i.e. the extent to which they are produced locally), it is possible to glean what portion of an "investment" goes to regionally produced products or services. Commodities and services with high RPCs have a lot of "leakage", that is, revenue lost to the local economy, and vice versa.

Second, identifying who pays and how the money will be spent is an obvious point, but one that oftentimes explains the politics behind an environmental policy decision. If, for example, the community is considering tax breaks to encourage the agricultural use of land, the result is simply that the agricultural sector will owe less taxes and then there is no vector of "final demand" (list of goods and services to be purchased). Of course, less taxes may result in less government spending which may affect employment, but that circuitous link will not be addressed here. On the other hand, if the community is considering something more pro-active, like a watershed restoration project, then it becomes important to know how that money is being spent. Input-output analysis (I/O) can be used to calculate the job creation impacts from particular expenditures. An I/O model takes into account the direct, indirect and induced employment effects that flow from an "investment". Direct employment refers to the jobs created in the first round of expenditures (e.g. hiring equipment operators, engineers, landscape designers). Indirect employment is created by the purchase of goods and services (e.g.

equipment, tools, office supplies). Induced effects are those created by the respending of wages of those employed, directly and indirectly, by the project.

Third, if the decision, action or policy causes the private sector to undertake an expense that might not otherwise be chosen, it is important to know the financial status of the affected firm(s). The firms' ability to absorb the cost will largely determine whether any job losses will result -- either through layoffs or reduced output. For example, if a community considers requiring extensive stormwater control systems for all new developments, the resulting impacts on developers and those employed by them will depend upon their ability to absorb additional costs. Obviously firms with reserves or sufficient operating margins will be less apt to reduce their workforce in response to a performance-based requirement. Similarly, real layoffs can occur when affected firms are without adequate reserves or profit margins to absorb the cost.

Fourth, environmental policy is replete with cases where economic interests compete over a natural resource -- where one party's gain is another party's loss. Industries discharging into a river have interests than run counter to local fishermen and tourist-based firms. All non-point source polluters (urban drainage systems, agricultural run-off) compete with each other over the assimilative capacity of a water body. Tree growers receiving acid rain precipitation have interests that counter to coal-fired utility producers. Foresters can compete with dairy producers for activity along a rivers' streambank. Recreational fisherman can compete with economically motivated fishing interests over policies which influence the type of fish species in the river. When these kinds of trade-offs occur, the job impacts analysis gets more complicated because each sector's response must be gauged; and some of those inter-linkages depend upon having scientific estimates of cause-and-effect from the natural system to each economic stakeholder. A decision to ban river dredging might aid fishing but hurt river-based transportation. Job losses must be subtracted from job gains. Needless to say, gauging the net effect is much more complicated than just estimating the most immediate effects.

Fifth and finally, natural resource dependency lies at the heart of many of our economic activities, and hence our environmental policy decisions. The timing questions that arise from our economy's dependency on natural resources is whether long-run economic use (and hence employment) is protected, perhaps at the expense of short-run gains? This can arise from natural resource utilization issues such as soil erosion, over-foresting, over-fishing, and over-grazing where society's long-run economic interests are better served by restraining today's usage. Of course, many of these natural resource decisions are made by the national government and/or flow from global economic forces, but communities can also impact decisions related to forestry, fishing, grazing, and agriculture. In all of these areas, there is a dependency on the underlying integrity of the natural

resource and there are frequently trade-offs between the more profitable short-run exploitation and long-run, more sustainable use. Even if long-range future forecasts are not possible, our analyses should highlight the benefits of more restrained use of natural resources, or conversely, the long-run dangers of over-exploitation.

Conclusion

Taken together, these five screening questions should help frame and sharpen the job-environment debate at the local level. If expenditures are involved, regional economists can produce some quantitative predictions of job impacts of particular decisions. The analysis becomes much more complicated when multiple sectors are competing for the services of a natural resource.

More importantly, to repeat and amplify Robert Repetto's point: environmental policies should not be judged solely at the level of effects on employment. Although this Issue Brief is limited to that subject, environmental protection decisions should be judged in terms of a number of other criteria: quality of life in all its dimensions (recreation, aesthetics, traffic congestion, taxes, etc.), human health, intergenerational equity, cultural and religious values, ecosystem functioning and biodiversity. One way to organize the pros and cons of various choices to make a matrix, with policy choices down one side and categories of consequences listed across the other. On that matrix of multiple impacts and consequences, this note is confined to one column: jobs. With careful analysis and reasoning, the conventional wisdom about jobs and the environment might be in for a few surprises.