The Economics of Inmate Labor Force Participation

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Chapter 4

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Costs, Benefits and Distributional Consequences of Inmate Labor

Biographies

Alan Krueger holds a joint appointment as the Bendheim Professor of Economics and Public Affairs in the Economics Department and Woodrow Wilson School at Princeton University. He also serves as Director of the Survey Research Center at Princeton University and editor of the *Journal of Economic Perspectives*. He served as chief economist at the U.S. Department of Labor, 1994-1995. He has also been named a Sloan Fellow, a National Bureau of Economic Research Olin Fellow, and a fellow of the Econometric Society. In 1997, he was awarded the Kershaw Prize by the Association for Public Policy and Management.

Professor Krueger received his Ph.D. from Harvard University in 1987.

Professor Krueger's primary research and teaching interests are in the general areas of labor economics, industrial relations, and social insurance. His current research projects include an examination of the effect of education on economic growth, a study of the relationship between class size in the elementary grades and students' subsequent success, a study of the causes and consequences of the high-pressure U.S. labor market of the 1990's, a study of the payoff to attending a selective college, and an analysis of the impact of technological change on the labor market.

Jeffrey Kling is Assistant Professor of Economics and Public Affairs of the Woodrow Wilson School of Public and International Affairs, Princeton University. He is also a faculty associate of the Industrial Relations Section and the Office of Population Research at Princeton, and a Faculty Research Fellow in the Labor Studies Program at the National Bureau of Economic Research. He has previously served as assistant to the Chief Economist at the World Bank and special assistant to the Secretary of Labor.

Doctor Kling received a Ph.D. in Economics from the Massachusetts Institute of Technology in 1998.

Doctor Kling's interests are in the fields of Public Economics, Labor Economics, and Econometrics. His research focuses on development of methodologies that combine econometrics and creation of new quantitative data with qualitative interviews and institutional knowledge in order to identify causal mechanisms through which behavior is affected by public policy. These methods are applied in assessing the impacts of particular policies affecting employment, crime, and well being of families in poor urban neighborhoods.

Presentation

The primary question we have been asked to address for this Symposium is:

Are bans on inmate labor force participation
'good' or 'bad' for the U.S. economy?

Our answer to this question, subject to qualifications discussed below, is that a ban on prison labor is probably 'bad' for the economy in the narrow sense that it slightly reduces the total output of goods and services in the domestic economy as officially measured by figures for the Gross Domestic Product (GDP). As the following calculation suggests, however, the potential effect of permitting prison labor on GDP is likely to be quite small. To derive an upper bound estimate of the effect of encouraging prison labor on GDP, suppose that all inmates work full time, year round (i.e., 2,000 hours per year), and produce output per hour equivalent to the minimum wage ($5.15). Under these assumptions, inmate labor would produce $19 billion of output. In 1998, total GDP was $8.5 trillion in the U.S., so the potential addition of inmate labor to GDP is only 0.2 percent of total U.S. GDP.[1] This figure is less than the typical magnitude of "statistical discrepancy" in the National Income Accounts; it is barely noticeable.

We should stress that our calculation probably provides a substantial overestimate for several reasons. First, labor force participation of inmates is likely to be well under 100 percent even if employment of inmates is encouraged since relatively few inmates work when they are not incarcerated. Second, the average inmate may produce less output per hour than the minimum wage, especially once possible additional security costs or prison modifications are taken into account.[2] Third, prison industries already

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[1] 1998 GDP is reported by the U.S. Commerce Department in "National Income and Product Accounts Tables," *Survey of Current Business*. The very small amount of output relative to the total in the U.S. economy is the same point made by Rod Miller, Mary Shelton, and Tom Petersik, "Inmate Labor in America's Correctional Facilities: A Preliminary Report of the American Bar Association's Subcommittee on Correctional Industries," Community Resource Services, April 1998.

[2] Inmates worked for wages that averaged 78 cents per hour in prison industries in 1997, so the minimum wage may overstate the average productivity of inmates. This figure is derived from the ratio of total inmate wages paid in 1997 (Miller *et al.*, 1998, Figure 12) to total inmate labor hours (Correctional Industries Association, 1998, p. 108).

produce goods worth about $1.6 billion, so time used to produce this output should be deducted from total potential available hours.[3] Finally, inmates already perform a great deal of uncompensated general work assignments in and around prisons (e.g., cleaning the facilities and preparing food) which are not included in GDP as far as we know, so this time would also have to be deducted from potential available hours.[4]

Even if prison industries contribute a small amount to total output, they are not necessarily 'good' for the economy. For example, in a traditional government-operated industry, if extra security and supervision costs are required to create an environment that permits work compared to the costs of maintaining an environment in which inmates are not working, then these extra security costs might exceed the value of the output from the industry. In this case where the industry is not profitable for the government, it should be shut down even though some output was being produced, and total GDP raised.

A narrow focus on GDP is not very informative. We believe a more important economic question to address is:

Is the economic value of the social benefits of inmate labor greater than the total costs to society?

If the social costs outweigh the benefits, then the government should ban inmate labor. Conversely, as long as the social benefits are greater than the costs, then the government should encourage inmate labor. We believe it is critical to focus on social costs and benefits and not on GDP, because many of the most economically significant aspects of inmate labor are not captured by the dollar value of the goods produced by inmates.[5]

What do we mean by social benefits and costs? The answer is that policy-makers need to estimate as well as possible the dollar value of the various consequences of allowing inmate labor. Some of these values are easily observed, such as the wages that private firms are willing to pay the laborers. Other values are less easily observed, but verifiable in principle, such as the net change in the cost of security to the prison for

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[3] Gross sales are reported in: Correctional Industries Association. *1998 Directory: Producing Productive People*. Baltimore, Maryland: Correctional Industries Association, 1998; hereafter abbreviated (CIA 1998).

[4] A more accurate measure of GDP would include the value of the service performed by inmates engaged in general work assignments. In principle, general work assignments in prison are services that would require performance by at least some non-inmate workers if there were a ban on general work by inmates. It appears to us that a ban on general work by inmates combined with performance of exactly the same activities by non-inmate labor that received wages would increase measured GDP, but this is a flaw in the measurement of GDP because the output of economic activity is unchanged regardless of whom performs the work.

[5] This question essentially combines two of the four main questions we were asked to address. One question was: "Are bans on inmate labor force participation 'good' or 'bad' for the U.S. economy?" Another question was: "If there are any criminal justice or correctional effects distinguishable from economic aspects, please identify them -- particularly their effects on net social benefits and costs."

inmates who are working in comparison to those who are not working. Still other values are not directly verifiable, such as the cost of pain and suffering caused by different numbers of crimes committed after release by inmates who engaged in inmate labor in comparison to those who did not work as inmates; it is possible that permitting prison labor could reduce subsequent crimes and recidivism because released prisoners who have work experience fare better in the non-institutional economy. Despite the difficulty of precisely quantifying these effects, it would be a mistake ignore these non-verifiable values (implicitly assuming they are zero) so there have been many studies that try to obtain rough estimates of these values. We specifically refer to "social" benefits and costs because some consequences of inmate labor may affect society-at-large even though they do not directly affect the inmate laborer or the employer. These benefits may be realized at the time the labor takes place, or in the future. For example, if the experience of inmate labor decreases criminal activity after release, then there would be future benefits from the reduction of pain and suffering associated with crime. These benefits should be discounted to present values.

In the context of the decision about whether to allow inmate labor, the decision is much easier if the government allows private employers to bid for the services of the inmate labor, provided that the bidders bear any changes in security costs. When the government is not the employer of labor and producer of the goods, it requires much less information because it does not need to know the details about the profitability of the specific product to be made in order to make decisions about allowing inmate labor. Even when the employer is a private firm, the government still needs to assess whether there are important social benefits and costs beyond those taken into account by the employer (in its decisions about the production of goods and the number and wages of inmate laborers) that suggest whether the production should be subsidized or taxed because of the government's interest in other consequences of the employment of inmate labor.

We have identified two types of social consequences from inmate labor. (1). Partial equilibrium consequences can be thought of as due to one small enterprise that would not have been undertaken if inmate labor were not available. (2). General equilibrium consequences may occur if there were many enterprises using inmate labor, cumulatively large enough to affect the product and labor markets in which they compete.

We believe the most important partial equilibrium social benefits are crime reduction, earnings by inmate laborers, and security cost reductions, which are discussed below.

Possible reduction in the number of crimes committed by offenders after release. Research suggests that offenders commit 12-15 crimes per year after release, which have a large economic cost to society.[6] There is some evidence that participation in inmate

[6] For example, see Steven Levitt, "The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Legislation," *Quarterly Journal of Economics*, 1996, 319-251.

labor provides skills and experience that help former prisoners to forgo crime. For example, the recidivism rate appears to be 3-8% lower for former inmate laborers than for those with similar characteristics who were not inmate laborers.[7] The economic value of this crime reduction could be quite substantial. For example, if just five percent of released prisoners were induced to commit no crimes after being released, compared to a situation in which they would commit an average level of crime (say, costing $35,000 in the first year after release and gradually declining to zero after fifteen years), the net present value that could be saved over the 15 year period would be about $11,000 *per released inmate*.[8] Moreover, if five percent of released prisoners avoided a two-year prison term after participating in inmate labor, the present value of future incarceration costs would be reduced by about $2,800 *per released inmate*.[9]

It may also be true, however, that this relationship is not causal and that those who choose to participate in inmate labor would have had a lower propensity to engage in criminal activity even if they had not worked. Further study of this recidivism issue should be a high priority. If there were a waiting list of inmates who wanted to work, then a random lottery for participation would be both equitable and facilitate study of the issue since the group not chosen in the lottery would be a natural control group. Alternatively, the opportunity for inmate labor could be made available at some prisons, and researchers could compare the experiences of these inmates to that at otherwise similar prisons.

Wages paid to inmate labor. Benefits accrue to inmates, who have saving to draw upon after release, and to their dependents in the form of support payments. Transfers can also be made to victim compensation programs and to the government through taxes and payments for room and board. In the past two decades, prison industry enhancement programs have been operating in which $84 million dollars were paid in wages, of which

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[7] A study of the federal PREP program (for work experience, vocational and apprenticeship training) found that participants had a recidivism rate of 6.6%, in comparison to 10.1% for comparison group with similar demographics and criminal history (and 20% overall rate for all prison inmates). See William Saylor and Gerald Gaes, "Training Inmates," *Corrections Management Quarterly*, 1:2, 1997, 32-43. See also: Stephen Anderson. *Evaluation of the Impact of Participation in Ohio Penal Industries on Recidivism*. Columbus, OH: Ohio Department of Rehabilitation and Correction, 1995. Comparisons were made between inmates with similar reading scores at admission who did and did not later participate in Ohio Penal Industries (OPI) work. For inmates ages 26-30 (22% of the sample) the recidivism rate was 22% for the OPI group and 30% for the non-OPI group. For ages 31-40 (29% of the sample) the recidivism rate was 24% for the OPI group and 29% for the non-OPI group. For other ages, the recidivism rates appear to be similar.

[8] The dollar value estimate of $35,000 per year is conservative in the sense that it is somewhat lower than the $43,100 estimate of the average dollar value of the cost of crimes excluding murder committed by released inmates from Levitt (1996). This illustrative calculation assumes straightline depreciation in the dollar value of crime over 15 years, and a discount rate of four percent.

[9] For this calculation, the annual cost of incarceration is assumed to be $30,000. (See Levitt 1996 for citations to estimates ranging from $23,500 to $35,000). Five percent of prisoners are assumed to be released for one year, and then in prison for two years, with a four percent discount rate.

8% were contributed to victims programs, 6% to family support deductions, 12% to withheld taxes, and 22% to room and board.[10] There may also be an increase in employment and earnings in the legitimate labor market after release that would have many of the same benefits, as suggested by research on offenders released from federal prisons.[11] As suggested above, further study to determine the causal effect of inmate work programs on later outcomes is a high priority for future research.

Possible reduced security provision by prisons for inmate laborers. Employing firms may have to provide special security when inmates are working. Another aspect of the security issue, however, is that the operating costs of corrections facilities could be lower when firms are occupying 6-8 hours per day of inmates time. Furthermore, even when inmates are not at work, their morale and behavior may have improved so that the costs of security are reduced, as suggested by research in New York.[12] The quantitative magnitude of costs savings from this reduced need for security have yet to be assessed.

In partial equilibrium, we do not believe there are important social costs. The real question for the viability of small enterprises in a partial equilibrium analysis is whether enough private firms will choose to employ inmate labor at prevailing wages. The combination of paying prevailing wages for low skills with extra security costs in the workplace may not be attractive to employers relative to alternatives. The social benefits provided from reduced crime, redistribution of inmate wages, and reduced prison security costs suggest that there could be under-provision of inmate employment and that society could be better off if the government provides a subsidy to employment.[13]

We believe the most important general equilibrium social benefit in the long run is the efficiency of production. Benefits accrue to consumers in the form of lower prices and to employing firms who have a larger supply of less-skilled labor willing to work at

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[10] CIA 1998, p. 99.

[11] Saylor and Gaes (1997) find that PREP program participants had an employment rate of 72% one year after release while non-participating inmates with similar background characteristics had an employment rate of 63%.

[12] Kathleen Maguire, "Prison industry programs and inmate institutional behaviour." *Forum on Corrections Research* 8:1, 1996. The study compares inmates above the 80th percentile in their number of institutional infractions prior to participating in inmate labor to a sample of inmates with a similar number of infractions during that time period. In a follow-up, the group that participated in inmate labor had incurred 3.3 infractions while working and those who did not work incurred 5.0 infractions. While the results for this high infraction subgroup were statistically significant, there were not significant changes for those with a lower number of infractions prior to the inmate labor experience.

[13] One type of subsidy that may be feasible here is a simple wage subsidy. In general, the wage subsidy is thought to be an unattractive policy instrument because it can be easily extorted by an employer who reports fraudulently low hours and a high wage -- since usually information on hours is difficult to verify. In the case of inmate labor, there is directly accounting for the time the inmate spends with the employer, so this usual issue can be resolved.

low wages. As pointed out earlier, however, the effect of permitting prison labor on the overall economy is likely to be quite small.

It is also our opinion that there are important potential social and distributional costs from encouraging prison labor, due to an outward labor supply shift of (mainly) unskilled inmate workers that will have consequences for less-skilled civilian workers.[14] The first two columns of the following table compare the education distribution of the jail and prison inmates to the general population in 1991. Inmates are 2.4 times more likely to lack a high school diploma or GED than are those in the non-institutional U.S. population.[15] In the third column, we use the education distribution of inmates in 1991 to infer the education levels of the 1.72 million men in jail or prison in 1998, and then report the ratio of the number of inmates at each education level relative to the number of men in the civilian labor force in the same education category.[16] These figures provide an indication of the potential magnitude of the labor supply shift due to prison labor by education class. Clearly, because so many inmates have a low level of education, the supply shift due to permitting prison labor will be greatest for the least skilled non-institutional workers.

	Education Distribution		Inmates as a Proportion of the
	Inmates	Population	Civilian Male Labor Force, 1998
Less than High School Graduate	.47	.21	.105
GED or High School graduate	.38	.36	.033
At least some college	.16	.43	.008

We estimate that if inmates join the labor force, the number of high school dropouts in the labor force will expand by 10.5 percent. In the long run, this increase in supply will probably have a greater effect on wages for less-educated workers in the non-institutional workforce, than on their employment (except, of course, for those who voluntarily chose to withdraw from the workforce because of the decline in wages). If the labor demand elasticity for this group of workers is -0.5, then wages could fall by as much as 5 percent for workers with less than a high school degree if all prisoners join the workforce.[17] This is an upper bound for several reasons: (1) the relevant labor market

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[14] Our discussion of this social cost addresses one of the questions posed to us for this symposium: "Will expanded inmate participation in the economy create, destroy, or have no effect on civilian employment in the United States?"

[15] U.S. Department of Justice. *Profile of Inmates in the United States, England, and Wales, 1991*. Washington, D.C.: Bureau of Justice Statistics, 1994 (NCJ-145863).

[16] The number of prison and jail inmates by sex is reported in: U.S. Department of Justice. *Prison and Jail Inmates at Mid-year 1998*. Washington D.C.: Bureau of Justice Statistics, 1999 (NCJ 173414). The number in the civilian male labor force by education is reported in: U.S. Department of Labor. *Employment and Earnings*. Washington D.C.: Bureau of Labor Statistics, January 1999, p. 174.

[17] An elasticity of –0.5 for total labor demand was the median estimate in a survey of 65 labor economists. See Table 2 of Victor Fuchs, Alan Krueger and James Poterba, "Economists' Views about Parameters, Values, and Policies: Survey Results in Labor and Public Economics," *Journal of Economic*

also includes women; (2) inmates probably have less skill than non-institutional workers with the same level of education; (3) only a proportion of inmates will work; (4) some fraction of civilian workers may chose to withdraw from the labor force rather take a job that pays 5 percent less; (5) the minimum wage provides a floor below which wages cannot fall in many companies. Despite these caveats, this back-of-the-envelope calculation provides a rough estimate of the potential impact of prison labor on the less-skilled non-institutional labor force. Moreover, if civilian workers who withdraw from the formal labor market because of deteriorating wages are pushed into a life of crime, the social costs could be substantial.

Overall, however, despite the large increase in incarceration in the U.S., inmates still would be a small fraction of the labor force even if many of them were working. While the proportion of the population in prison or jail has doubled since 1985, the number of adult men in prison or jail equaled 2.3 percent of the number in the male labor force.[18] For workers with some college, that ratio is under 1 percent. The 1998 overall employmenttopopulation rate is predicted to be 70.6 percent had the prison population been included in the estimates, compared to the Bureau of Labor Statistics estimate of 70.9 percent for the non-institutional population in the hypothetical situation in which all incarcerated individuals were added to the civilian, non-institutional population, and 35 percent were employed.[19]

In assessing the economic value of the social costs and benefits, the government also must consider the distributional consequences. In this case, the less-skilled labor adversely affected by the presence of inmate labor may also as a group be the recipient of some of the social benefits. The reason for this is that they are the same group that is most likely to benefit from any reduction in criminal victimization resulting if participation in inmate labor programs lowers criminal activity after release. Some members of this group will also benefit from the family support payments made by inmate laborers. A concrete recommendation about the decision the government should

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Literature, 56 (September 1998), 1387-1425.

[18] U.S. Department of Justice. *Sourcebook of Criminal Justice Statistics, 1997*. Washington, DC: Bureau of Justice Statistics, 1998 (NCJ 171147).

[19] This analysis is based on Lawrence Katz and Alan Krueger, "The High Pressure U.S. Labor Market of the 1990s," forthcoming *Brookings Papers on Economic Activity*, 1999. The original analysis considered what would have happened to employment if inmates had been released. Here we consider the implications of including inmate laborers in the labor force statistics. We focus on men because about 90 percent of those in prison or jail are men. Administrative earnings data collected by the California Employment Development Department show that 35 percent of individuals who served 12 year sentences in California for federal crimes were employed prior to being arrested. This figure is similar to the employment rate those convicted but not sentenced to prison time, two years after their case was filed. Consequently, we assume that 35 percent of those in prison or jail would be working if given the opportunity. See Jeffrey Kling, "The Effect of Prison Sentence Length on the Subsequent Employment and Earnings of Federal Criminal Defendants," Woodrow Wilson School Economics Discussion Paper 208, January 1999. For U.S. employment and population figures, see the Bureau of Labor Statistics website at www.bls.gov.

make would be based on the magnitude of these costs and benefits, and a social welfare function that places weights on the welfare of the various distributional groups. It would also be important to investigate the relative cost effectiveness of alternatives such as education and training for prisoners, which could in principle provide some of the same benefits without the distributional consequences for other less-skilled workers who may be competing with inmate laborers. Any serious recommendation would require much further research on these issues.

Another question we've been asked to address is:

What steps are essential to improve the economic contribution of the incarcerated labor force?

As we noted above, we see no theoretical rationale for the government to be the employer of inmate labor. We suspect the contribution of inmate labor to economic output would be greater if they were employed by the private sector. Shifting to an open system of private sector employers could also have the benefit of placing all prospective employers on a level playing field, without preferences for particular employers or for the purchase of prison-made goods. *In concert with privatization, we suggest that inmate workers be covered by all relevant labor legislation that applies to private sector firms: including the right to form a union, fair labor standards, and workplace safety regulations.*

Because inmate laborers do not have the option to "vote with their feet" or shop around for alternative, better paying jobs, the potential for inmate labor to be exploited is great. In this situation, unionization may also provide important benefits and protections. In order to maximize their economic contribution, inmate labor needs a negotiating agent aligned with its interests, and a union could serve as that agent. A union could take responsibility for handling outreach to employers and specialize in handling additional security arrangements for inmate labor that would be unfamiliar and costly for each private sector employer to undertake. If the government were to subsidize inmate labor because of social benefits, one way to administer the subsidy would be make payments to the union that could be used to pay for security and make inmate labor more attractive to potential employers. A union could also provide continuity in managing relations with the employer even when there is high turnover in the workforce. We note that since inmate labor is not a critical component of any one private sector industry (in the way that, say, airline mechanics are to the airline industry) they would probably not reach agreements that lead to supra-competitive wages since employers could substitute with other unskilled labor relatively easily. On the other hand, unionization may lead to a more accurate valuation of the general work tasks performed in prisons, although it is not clear that this would actually raise prison costs since increases in payments could probably be taxed away through charges for room and board. A union may also be more effective in convincing inmates to participate in educational programs that would raise their wages, since inmates may (accurately) perceive that this advice is coming from a party that has their self-interest in mind.

Another important step in improving the economic contribution of inmate labor

would be to set the "tax rate" for wage deductions at an appropriate level. Further research will be necessary to better understand their labor supply elasticity (the sensitivity of inmate labor force participation to the after-tax pay that they receive), perhaps using research designs as described above for studying recidivism, but instead varying the wages instead of the availability of work. As documented above, many former inmates do not work after release in the legitimate labor market, but their opportunity costs (e.g. other ways to make money, value of leisure time) may be substantially different while incarcerated. If the tax rate is set too high, the maximum social benefits may not be produced. Even the total revenue for available transfers will not be maximized if inmate laborers choose not to work at a high tax rate and would have worked more a somewhat lower tax rate.

One final point is that, since the economic contribution of inmate labor is likely to be a very small addition to GDP, and since the main economic effect of inmate labor would follow from a possible reduction in recidivism rates, the government should consider whether there are more efficient and effective means than inmate labor to reduce future recidivism rates. For this reason, we wish to reiterate that other strategies for reducing recidivism rates and integrating inmates into mainstream society after release should also be considered and studied. Some of these strategies may complement inmate labor – such as requiring employers to provide specific on-the-job-skills training – and others may be a substitute for inmate labor because they take time that diverts inmates away from work – such as requiring general classroom courses in basic reading or the control of aggression. Identifying ways to integrate inmates into mainstream, law-abiding society upon release should be a priority from an economic as well as social perspective.

Panel Remarks

In addition to their presentation, Alan Krueger and Jeffrey Kling also provided comment to panelists, extending the detail of their views on inmate labor force participation. A fuller sense of their views includes understanding both their remarks and their responses to panelist questions. Their full responses, minimally edited, to the following panelists on the following issues can be found below in the chapter presenting the panel:

- Responses to Panelists by Alan Krueger:

Panelist	Response Subjects
Gus Faucher	Minimum Wages and Wage Setting Human Capital and Education Exploitation and Labor Abuse
Steve Schwalb	Repatriating Offshore Jobs (Import Substitution)
Brenda Smith	Female Inmate Labor Force Participation

Greg Woodhead Unions

- Responses to Panelists by Jeffrey Kling:

Brenda Smith Female Inmate Labor Force Participation