




# The Long-Term Consequences and the Political Economy of Military Draft

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### Military Draft – An Anachronism?

- 16 out of 26 NATO states no longer rely on conscription
- Western countries with strongest military (the United States, the United Kingdom, France) have abolished draft
- Austria, Finland, Germany, and Sweden among a decreasing number of Western countries still using draft
- globally: draft system still dominant
- draft 24-36 months in Russia, China, South Korea, Taiwan, Israel
- From time to time, draft resurfaces even in countries that have abolished it. Iraq War: “Feeling the Draft” in the US; fall 2005: Chirac’s proposal for “voluntary draft”

## 1. Motivation

### How to recruit labor for the state?

- In principle, two methods:
  1. Forced labor, legal duty to do certain services
  2. Recruitment via the labor market, financed out of general (monetary) tax revenues
- conscription = version 1; voluntary army = version 2
- both methods rely on coercion and the government's tax monopoly

## 1. Motivation



### Economists and Conscription:

- compare different tax regimes
- part of optimal tax theory

In principle, economists' view on draft has been unchanged since Adam Smith:

*„...the irresistible superiority which a standing army has over every sort of militia.“ (1776, 5.I.1)*

## 1. Motivation

But: The draft is the cheaper system, isn't it?

In Austria, a draftee costs 1.100 € per month (generously calculated)

A professional soldier (private rank) costs 2.000 € per month

*„...the irresistible superiority which  
a standing army has over every  
sort of militia.“*



### **Plan of presentation**

What are the “true“ costs of military conscription?

- Static costs
- Dynamic costs

### Empirical Study

- Growth effects of the draft

Why do we observe draft?

- Simple model
- Political economy of the draft

## 2. Static Inefficiencies of Military Conscription



### Hidden Costs:

- Utility losses for draftees
- Output losses
- Inefficient matching
- Foregone gains from specialization
- Distorted factor prices in the military sector

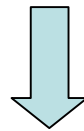


Substantial static  
opportunity costs

### 3. Dynamic Inefficiency of Military Conscription



- Draft Age: 18 to 25 ys
- Without draft: studies, first experiences on job, vocational training
- Call to service interrupts education



Distorted  
accumulation of  
human capital

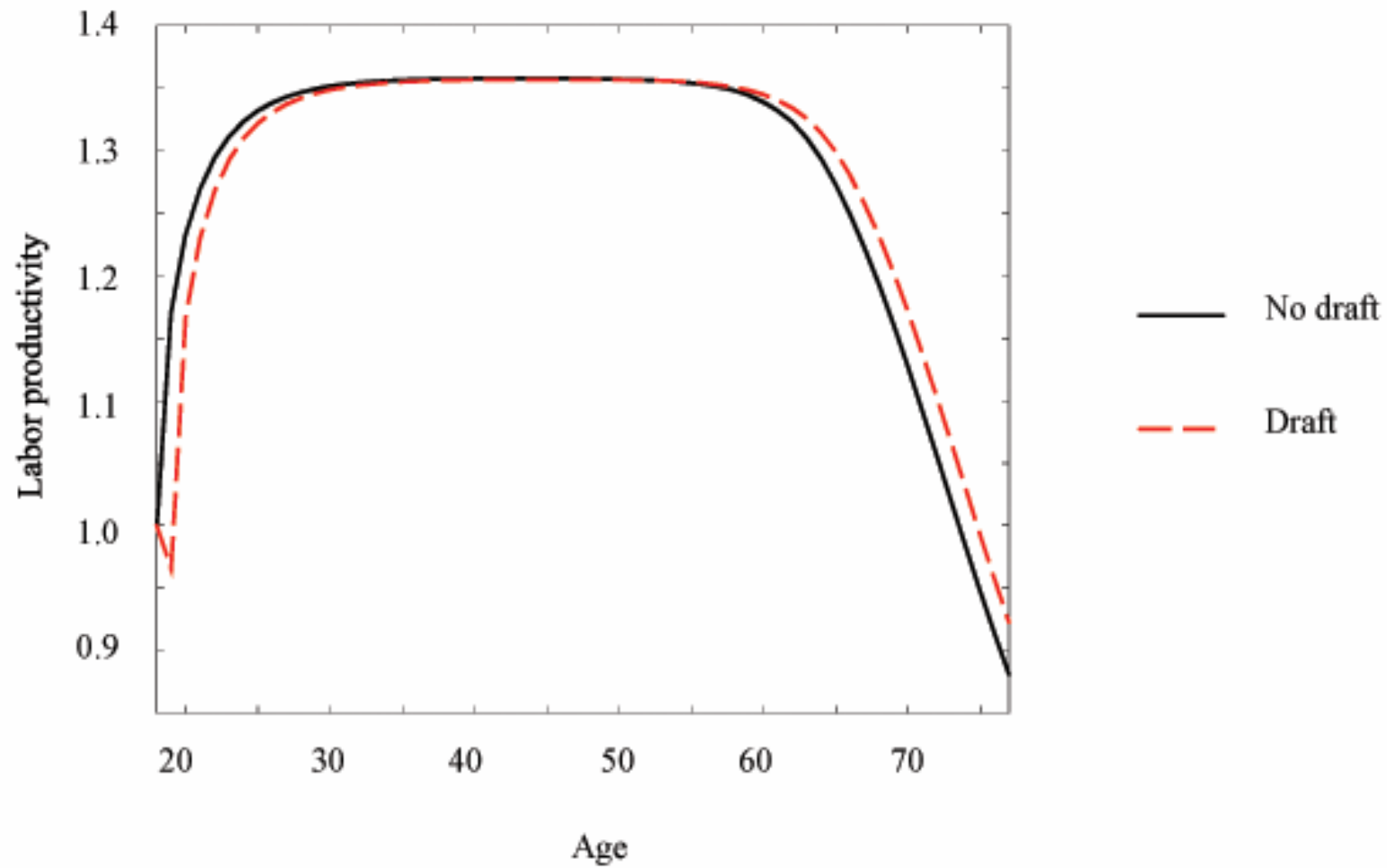


### 3. Dynamic Inefficiency of Military Conscription

#### Theoretical Model by Lau, Poutvaara, and Wagener (2004):

- compares an economy with draft with an identical one without draft
- dynamic CGE model with 60 overlapping generations (age 18-77)
- single commodity, produced with capital and labor
- individuals decide on time usage: education, work, leisure
- individuals born with a small stock of human capital
- government uses a fixed amount of output  $G$  every period (for example, military). Can either purchase or produce using same technology as private sector
- draft = restriction on time usage: in their first year, draftees must work full time for the government
- no static inefficiencies
- steady-states only

### 3. Dynamic Inefficiency of Military Conscription



### 3. Dynamic Inefficiency of Military Conscription

#### Effects:

- delayed accumulation leads to a lower stock of human capital
- lower labor productivity, lower output
- also non-draftees affected (lower output, higher tax rates etc.)
- result emerges already from the restriction of time usage
- if there is additionally under-payment, effects are augmented
- underpayment distorts also capital accumulation
- size of effects: with one-year conscription, 50% draftees per cohort, and 25% percent underpayment: GDP in the steady state decreases by up to 1%.



Military draft has sizeable dynamic costs.

## 4. Empirical Analysis

Study by Keller, Poutvaara, and Wagener (2006):

- “Military Draft and Economic Growth in OECD Countries“

Related empirical studies:

- NL (Imbens and van der Klaauw 1995) or USA (Angrist 1990): ex-draftees' income remains lower than that of non-drafted individuals for up to 15 years after service
- Kunze (2002): short term positive wage effect of draft, negative medium and long-term effect
- nexus between military spending and growth inconclusive (Ram 1995).
- Crespo-Cuaresma and Reitschuler (2003): non-linear relationship
- Stroup and Heckelman (2001): non-linear relationship between military use of labor force and growth

## 4. Empirical Analysis

### Set-up:

- growth regressions à la Mankiw, Roemer and Weil (1992) or Nonneman and Vanhoudt (1996)
- augmented Solow model:

$$Y(t) = A(t, m(t)) \cdot K(t)^\alpha \cdot H(t)^\beta \cdot R(t)^\gamma \cdot L(t)^{1-\alpha-\beta-\gamma}$$

Where:

$t$	time period
$Y$	output
$K$	physical capital
$H$	human capital
$R$	knowledge stock, generated by R&D
$L$	labor (non-augmented)
$A$	total factor productivity
$m$	vector of military variables

## 4. Empirical Analysis

### Assumptions:

- Labor force grows at rate  $n$
- Balanced growth path with growth rate  $g$
- Economy devotes constant shares of GDP to investment in physical, human, and knowledge capital  $s_k, s_h, s_r$
- identical depreciation rate for physical and human capital  $\delta$
- As in Mankiw et al. (1992) and Nonneman and Vanhoudt (1996), both the level of the natural log of GDP per working-age person and its growth can be presented as a function of investment rates, population growth rate, productivity growth rate, and depreciation.
- We add military variables to this previous analysis.

## 4. Empirical Analysis

### Data:

- 21 OECD countries (as in Mankiw et al., 1992)
- Time period: 1960-2000
- dependent variables: natural log of GDP/worker in 2000; growth thereof between 1960 and 2000
- investment in human capital proxied by average share of population in secondary education
- military variables:

Conscription dummy

Number of conscripts as share of labor force

Duration of military service

Duration of alternative service

} draft (1985)

Military expenditure as share of GDP

Share of military personnel in the labor force

} others

## 4. Empirical Analysis

### Some descriptive statistics:

- 14 out of 21 countries used draft
- average length of military service: 12.7 months
- average length of alternative service: 13.9 months
- with conscription, on average 1.2 % of labor force are drafted
- large standard deviations
- on average, military expenditure/GDP = 2.6% (both with and without draft)
- on average, countries with draft [without draft] employ 2.0% [0.9 %] of their labor force in the military

Dependent variable:  
Log [GDP/worker],  
2000

<i>Constant</i>	10.402 (1.667)***	12.772 (1.309)***	10.901 (1.662)***	10.781 (1.392)***
Investment/GDP	0.034 (0.259)	0.352 (0.196)*	0.170 (0.222)	0.216 (0.173)
Population Growth +0.05	-0.351 (0.378)	-0.043 (0.256)	-0.403 (0.403)	-0.577 (0.425)
Education	0.397 (0.294)	0.397 (0.188)*	0.485 (0.233)*	0.706 (0.247)**
R&D/GDP	0.137 (0.061)**	0.099 (0.060)***	0.082 (0.061)	0.054 (0.046)
Military Expenditures/GDP	0.048 (0.103)	0.079 (0.066)	0.101 (0.086)	0.136 (0.072)*
Military Staff/LaborForce	0.057 (0.122)	0.199 (0.121)	0.071 (0.097)	-0.104 (0.113)
Inflation	-0.381 (0.098)***	-0.253 (0.105)**	-0.333 (0.091)***	-0.442 (0.092)***
Conscription Dummy	-0.138 (0.126)			
Conscripts/Labor Force		-22.682 (8.132)***		
Length of Military Service			-0.185 (0.076)**	
Length of Alternative Service				-0.153 (0.069)**
$\bar{R}^2$	0.848	0.899	0.867	0.871
F-stat.	14.992***	23.229***	17.308***	17.852***

Dependent variable:  
Log-difference of  
[GDP/worker],  
1960-2000

Constant	8.897 (2.345)***	12.118 (1.921)***	10.109 (2.256)***	10.163 (2.231)***
Initial GDP 1960	-0.859 (0.138)***	-0.945 (0.091)***	-0.928 (0.117)***	-0.945 (0.106)***
Investment/GDP	0.129 (0.254)	0.369 (0.200)*	0.200 (0.226)	0.232 (0.178)
Population Growth +0.05	-0.513 (0.441)	-0.100 (0.301)	-0.455 (0.440)	-0.617 (0.458)
Education	0.363 (0.257)	0.399 (0.193)*	0.485 (0.241)*	0.698 (0.266)**
R&D/GDP	0.124 (0.078)	0.092 (0.068)	0.072 (0.072)	0.053 (0.053)
Military Expenditures/GDP	-0.019 (0.116)	0.059 (0.075)	0.075 (0.100)	0.115 (0.119)
Military Staff/Labor Force	0.106 (0.126)	0.201 (0.125)	0.078 (0.102)	0.106 (0.119)
Inflation	-0.276 (0.146)*	-0.218 (0.133)	-0.285 (0.132)*	-0.402 (0.135)***
Conscription Dummy	-0.178 (0.146)*			
Conscripts/Labor Force		-22.151 (8.155)**		
Length of Military Service			-0.181 (0.132)**	
Length of Alternative Service				-0.149 (0.074)*
$\bar{R}^2$	0.848	0.899	0.867	0.871
$F - statistics$	14.992***	23.229***	17.308***	17.852***
Implied $\lambda$	0.0490	0.0725	0.0658	0.0725

## 4. Empirical Analysis

### Summary of Results:

- Military draft depresses income levels (not stat. significant)
- Number of conscripts, length of military and alternative service have negative impact on GDP level (at the 1-5% level)
- Military draft hampers growth (5-10% level)
- Number of conscripts, length of military and alternative service have negative impact on GDP level (at the 1-5% level)
- Military expenditure or employment *per se* have no significant impact
- Results are robust across various specifications
- numerically: reducing conscription-related variables by one sdv would have led to increases in GDP growth by 0.27 to 0.48 % p.a.



Abolishing draft in an average OCED country that uses draft would lead to increases in GDP growth of between a quarter and half a percentage point

## 4. Empirical Analysis

### Sensitivity Analyses and Extensions:

- Results qualitatively similar both with and without inflation
- Leaving out military expenditures and military staff / labor force does not change qualitative results
- Leaving our R&D as in Mankiw et al. (1992): the dummy for having conscription, the share of conscripts of the labor force, and the length of conscription and of the alternative service always enter both the regressions for levels of GDP and those for its growth negatively, being usually significant with at least 5 percent level and often at 1 percent level, including for alternative service time throughout the regressions.
- The results hold also when excluding outliers
- Additionally, results are mostly similar with least median of squares (LMS) regressions, and with least absolute value (LAV) regressions.
- This suggests that results not driven by potential outliers.

## 5. The political economy of the draft



Given that military draft is inefficient, why is it so commonly used?

Poutvaara and Wagener:  
“To Draft or Not to Draft?”  
(IZA-DP No. 1559, 2005)

## 5. The political economy of the draft

### Model:

- transition effects of introducing or abolishing military draft
- parsimonious equilibrium model with two overlapping generations (youth and working age)
- homogeneous individuals, cohort size = 1
- During working age, individuals only work; during youth, a fixed time of  $a$  is used for education.
- the young decide on the effort in education  $e_t$
- education increases labor productivity and wages  $w(e_t)$ , but comes at a (psychological) cost  $c(e_t)$
- innate productivity:  $w(0)=1$
- Government needs an output  $m>0$  per period
- GDP in period  $t$ :  
$$y_t = \ell_t \cdot w(e_t) + 1 \cdot w(e_{t-1})$$

## 5. The political economy of the draft

### How can the government provide $m$ ?

- **Draft System:**

young individuals are forced to work in the government sector for a certain period; there they produce  $m$ :

$$m = w(0) \cdot d = d.$$

time spent on work by the young:  $1-a-d$

- **Professional Army:**

Government levies income tax at rate  $\tau$  and uses it to purchase  $m$ :

$$m = \tau \cdot y_t$$

time spent on work by the young:  $1-a$

## 5. The political economy of the draft

(ctd.)

- Separable Preferences:

$u$  = lifetime consumption– psych. costs of education

- Interest rate:  $r \geq 0$

**Hence:**

- With draft:

$$u = (1 - a - d + (1 + r)^{-1}) \cdot w(e_t) - c(e_t)$$

- With professional army:

$$u = (1 - \tau) \cdot (1 - a + (1 + r)^{-1}) \cdot w(e_t) - c(e_t)$$

where:

$$\tau = d \cdot [(1 - a) \cdot w(e_t) + w(e_{t-1})]^{-1}$$

## 5. The political economy of the draft

Results:

### **Proposition 1 (Comparison of steady-states):**

In the steady state of an economy with military draft,

- educational effort and attainment  $e$  and  $w(e)$
- income  $y$
- and lifetime utility of the population  $u$

are lower than in the steady state of an otherwise identical economy that produces the same amount military output  $m$  with a professional army.



Confirms the inefficiency of the draft.

## 5. The political economy of the draft

### Intuition:

What is the (negative) impact of military output  $m = d$  on education?

- With draft system:  $d \cdot w'(e) = d \cdot \frac{w'(e)}{w(0)}$
- With professional army:

$$\begin{aligned} & \tau \cdot (1 - a + (1 + r)^{-1}) \cdot w'(e) && \text{Timing effect} \\ = & d \cdot \frac{1 - a + (1 + r)^{-1}}{1 - a + 1} \cdot \frac{w'(e)}{w(e)} \\ < & d \cdot w'(e) && \text{Level effect} \end{aligned}$$

## 5. The political economy of the draft

Transition scenario I:

**Proposition 2 (Introduction of Military Draft):**

If the economy switches, at some point  $t$ , from a professional army to a draft system, this will benefit the then older generation. The young generation and all future generations will suffer.

## 5. The political economy of the draft

### Transition Scenario II:

#### Abolishing the draft:

A Pareto-improving abolition of military draft requires age-dependent taxes.

- If the generation that is old in the period of abolition would also have to pay taxes to finance the professional army, it would face a double burden.
- This implies: in all future periods the tax-financing of the professional army rests on the shoulders of the young generations.

## 5. The political economy of the draft

### **Proposition 3 (Abolition of Military Draft):**

A Pareto-improving transition from an economy with military draft to one with a professional army is feasible.

After transition, the stock of human capital will increase.

## 5. The political economy of the draft

### **Proposition 4:**

In an economy that has abolished military conscription in a Pareto-improving way and that operates at a positive interest rate, the steady-state levels of

- education  $e$  and labor productivity  $w(e)$
- national income  $y$
- and lifetime utility of the population  $u$

are lower than in the steady-state of an otherwise identical economy that has always produced the same amount of military output with a professional army.



Reason: timing effect

## 5. The political economy of the draft

**Intuition:** check negative impact of military output  $m=d$  on education:

Always with professional army (as above):

$$d \cdot \frac{1-a+(1+r)^{-1}}{1-a+1} \cdot \frac{w'(e)}{w(e)}$$

Professional army after transition:

$$u = \left( (1-\tilde{\tau}) \cdot (1-a) + (1+r)^{-1} \right) \cdot w(e_t) - c(e_t)$$

where:

$$\tilde{\tau} \cdot (1-a) \cdot w(e) = d$$

timing  
effect

Hence:

$$d \cdot \frac{w'(e)}{w(e)} > d \cdot \frac{1-a+(1+r)^{-1}}{1-a+1} \cdot \frac{w'(e)}{w(e)}$$

## 5. The political economy of the draft

### Summary of the model:

- Military draft is a non-optimal scheme for the current young and all future generations.
- Only the initially “old” benefit from its introduction.
- The draft can be entirely “undone”, if one is willing to impose a burden on those who are old during transition.
- The draft can also be abolished in a Pareto-improving way; however, this does not make it “undone”.
- Results hold in an  $n$ -OLG model, *mutatis mutandis*.

## 5. The political economy of the draft

**Hence:**

*The older generation supports the introduction of the draft*

*and,*

*if age-specific taxes are not feasible,*

*opposes its abolition.*

The “old”:

- those who are beyond draft age.
- the majority of the population.



Explains the political allure of military draft

## 6. Conclusion

### **Lessons:**

1. Military draft and other forms of forced labor might be cheap in budgetary terms, but nevertheless non-optimal ways of government finance
2. Military draft is replete with static and dynamic inefficiencies
3. Conscription in OECD countries costs up to 0.5 percentage points of GDP growth
4. In spite of that, introduction and continuation of draft may be supported by a political majority
5. Additionally, with draft the burden of government finance one-sidedly is imposed on the young (intergenerational imbalances)

## 6. Conclusion: How it should be?





Thank you.

Any questions?