

Employment Arguments for Protection and the Vita Theory

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The neoclassical theory of international trade and its derivative argument for free trade opposes measures to maintain employment in industries threatened by competition from abroad on the premise that they will reduce global allocative efficiency. Opposition is waived only when commercial policies are used to offset domestic imperfections (6). The neoclassical theory on which this commercial policy is based is hemmed in by numerous and important assumptions. Crucial among these are the long-run, static analytic framework and the homogeneity of factors of production with infinite substitutability among them. These render the theory badly equipped to analyse the process of adjustment from one mix of output to another, or a world in which factors of production are not infinitely substitutable. Canterbury's vita theory (4) (5) with its reliance upon a series of compartmentalized labor markets and imperfect and asymmetric mobility among them, offers much richer insights into the costs and benefits of commercial policy used to affect the degree of competition from foreign sources during the process of adjustment, or in the absence of infinite substitutability of factors.

The purpose of this paper is to use Canterbury's vita theory in combination with Leibenstein's concept of X-efficiency (14) to consider an argument for employment-related

protection. The question of which is the most appropriate tool of commercial policy is not considered here and protection is defined as any government policy which discriminates between home and foreign suppliers, or between import-substitute goods and non-tradables.¹ The paper is not concerned with employment-related arguments for protection when the economy is suffering from a recession (either individually or worldwide) or when a country has lost its capacity to accept a decrease in its real standard of living. The latter is the argument of the Cambridge Economic Policy Group, and is analyzed in (19) and (10). Section I provides a very short description of the vita theory. Section II considers the problem of "embattled" industries which may have a temporary disadvantage and its policy implications. Section III analyzes arguments for slowing down the rate of adjustment below that afforded by a free trade or hands-off approach. Section IV is concerned with the special problem of low-skilled labor as a chronic case of market congestion.

I. Adjustment-Related Features of the Vita Theory²

The vita theory develops a matrix of categories of labor supplied and demanded by

¹Blackhurst (2) points out that it is no longer valid to consider protection simply in terms of international policies and identifies the growing importance of domestic policies in affecting patterns of international trade.

²This section adapts the vita theory to suit the purposes of the paper. No suggestion is made that this summary provides a full measure of the richness of Canterbury's analysis or the details of its insights into income distribution.

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skill-level and by specific skills. Any discrepancy between the skills supplied and demanded results in a short-run disequilibrium. A long-run disequilibrium is also possible (see section IV below). The pattern of unemployment or excess demand varies among the cells of the matrix. In response to mismatches between the supply and demand matrices, labor can adjust in the long run by upgrading its skills or by lowering the skill-level of its competition. Spontaneous changes in supply can also follow from changes in demographic and educational factors. Induced changes in the demand matrix follow from the adaptation of users of labor to changes in the relative costs of different kinds of labor. Spontaneous changes in demand can result from the introduction of new technologies and from changes in the level and mix of aggregate demand.

Let there be n categories of general human capital. These include differences in industry-specific skills as well as in general skill levels. They are ranked by the inherent skill level although there is some obvious difficulty in comparing the skill levels of highly-trained professionals. Within each general category, there exists a number of 'occupations' or sub-specialties. The separation of individual tasks into occupations depends upon the elasticity of substitution in supply. If the category of general human capital with the most occupations is unskilled labor, and that category has m occupations, there exists an n by m matrix of specific human capital with a large number of zero cells. Each cell of the matrix contains all people who are capable of seeking employment in that market by virtue of their qualifications (their *vitae*). Because wages are positively related to skill levels, each worker will compete for employment in the highest attainable cell. Such a matrix can characterize a labor force in each geographic region within the country: The sum of these supply matrices across all regions characterizes national labor supply. In the case of

professionals, regional and national markets meld.

There exists a comparable set of matrices for the demand for labor. Within each region, firms have capital equipment in place, and the combination of the features of that stock of equipment, the level and the mix of total demand for goods and services will determine the short-run demand for labor by type. A summation of the matrices provides the national demand for labor by skill and skill-level at a point in time. By subtracting the number of workers in each cell of the supply matrices from those in the equivalent cells in the demand matrices, a series of regional matrices of excess demand and supply for labor is identified. If unemployment exists, it will pertain to those persons with the least qualified *vitae* within the relevant cell.

An individual acquires a *vita* over time. The details determined by birth are extremely important and determine genetic traits (mental and physical) as well as the family environment which may or may not encourage and assist in the acquisition of human capital. Combined with education and experience, the birth *vita* determines the mature *vita* which enables a worker to qualify for a particular cell. A worker will attempt to maximize lifetime income by acquiring human capital, at the expense of leisure and other assets, until the expected return to additional human capital is equal to its cost. In this search, the individual is constrained by the availability of nonhuman assets and by the birth *vita*.

Mobility among markets is limited. In the short run a worker cannot move from one market (cell) to another. In the long run, a worker may move geographically or may downgrade himself or herself to a lower category of human capital. In the very long run,³

³Marshall (15, 379) defines the long-run as involving the longer period needed to provide either the necessary human or physical capital. Here, long-run is defined in the traditional way of changing the composition of the

a worker can acquire human capital and move upwards in the matrix. Downgrading involves a loss of caste and is not lightly undertaken. Structural unemployment (when the supply and demand matrices are not matched when the stock of physical capital is fully employed) or a recession cum depression can result in downgrading at many levels. Workers will presumably find jobs in the level to which they descend and will displace a worker from that cell. This worker in turn will downgrade himself or herself and bump someone in a lower cell. The bumping process will tend to force the lowest level of general human capital to have a disproportionately large level of total unemployment. Upgrading is constrained by the availability of funds to individuals and by the limitations imposed by the birth *vita*. Geographic relocation is also limited by the availability of funds. In addition to these impediments to mobility among labor markets, there exist 'artificial' impediments to movement caused by institutional entry restrictions into a cell imposed by craft or industrial unions.

When the supply within a cell is governed by a union, it may command a premium particularly if the industry itself is highly profitable. The rate of profit or product price influences management's capacity to pay a premium wage. When the market for the end product is imperfectly competitive, management may yield to union demands with the expectation that higher costs can be made up by introducing new, more capital-intensive machinery or by passing the increase on to the ultimate user. Alternatively, spontaneous price increases by corporations can indicate the buoyancy of the product market and may stimulate union demands. Whatever the mechanism, the wage premium is the result of imperfections in the product or factor market when, as is usual with industrial unions,

stock of physical capital, and the very long-run in terms of changing the stock (upgrading) of human capital.

there is great substitutability between union members and other workers in the economy. Canterbury refers to this premium as "the economic profits allocated to workers per hour of effort." (4, 22.) Under these conditions, the wage rate is determined by bargaining strength and the rate of employment is determined by the level of production. In the long run, an asymmetry can affect this mechanism too. If the premium is acquired when times are good, and there is resistance to its renunciation when the industry is subjected to pressure from imports, employment will be affected by the wage premium.

The labor market is seen as a set of compartmentalized markets among which negligible short run mobility exists. Difficulties of mobility (in the long run) may be asymmetric in that downward mobility is easier than upward mobility (because upward mobility is constrained by the availability of resources and limitations deriving from the birth *vita*). Given that the acquisition of human capital, particularly human capital in a different industry, becomes more difficult with age, mobility is greater among the young.

Adjustment is necessary whenever the demand for labor by skill and skill-level changes in response to a change in the factors underlying the composition of the demand matrices. Such changes can be caused by changes in available technology or changes in the mix of goods demanded. The most probable impact of the international sector will affect the mix of goods demanded. Both demand and supply conditions will evolve in response to mismatching: the demand matrices will change as kinds of labor in excess supply become cheaper and those in excess demand become more expensive, and the supply matrices will evolve as workers change their offered skill or skill-level in response to changed long-run remuneration prospects or move geographically in response to varying job availabilities. Both sets of response take time and involve the long run or even the very long run. Any

dislocation will be the more serious, the greater is the magnitude of the shock, and the greater the degree to which the original shock is reinforced by any simultaneous disturbances.

II. Protection for 'Embattled Industries'

An 'embattled industry' is defined as an industry which has lost its traditional share of its domestic market because of some *transitory* phenomenon. When the transitory phenomenon has passed, and provided the industry has not been destroyed in the interim, the industry will be able to regain (most of) its traditional market share. In considering embattled industries, it is essential to distinguish between two types of inefficiency. International inefficiency exists in an industry when foreign factor prices and resource endowments enable foreign competitors to preempt the home market—the home industry has a straightforward comparative cost disadvantage. Domestic inefficiency exists in an industry when its costs and prices are not minimized in terms of the quantity and prices of factors of production used in the industry. Domestic inefficiency testifies to the existence of some inertia or monopoly element in the industries' product and/or factor markets.⁴ The state of being embattled may derive from:

- (i) A temporary and reversible change in international trading conditions which transforms an industry from being internationally-competitive to non-competitive. Such a possibility might occur when a nation's currency is overvalued because of a currency inflow, due to high interest rates, or because of rigidities in the international financial system.

⁴Domestic inefficiency is similar to but broader than Leibenstein's concept of X-inefficiency (14). Leibenstein does not include overpriced factors as a source of X-inefficiency.

- (ii) A permanent change in international trading conditions; an industry is embattled only if the elimination of any domestic inefficiency can be effected and would restore international competitiveness. An industry with a 'wage premium' is domestically inefficient, but the removal of the wage premium could restore the industry's international competitiveness.
- (iii) A temporary change in domestic efficiency as when the U.S. automobile industry was slow to adapt its models and capacity to changes in the pattern of demand by size of cars.

In terms of Canterbury's vita theory, the second cause is the most important in that the wage premium could cause an industry to destroy itself because of a failure of the union to sacrifice its wage premium acquired under more favorable conditions in the product market.

Manufacturing firms which use "target-return pricing" in which prices are set by computing a mark-up over prime cost necessary for an adequate rate of return on capital given expected rates of output and sales, will be hard hit when international competition forces prices and/or volume down (7). If prime costs, including any wage premia, are not reduced in conformity with the reduction in selling prices, profits will bear the major part of the loss and it may be impossible to maintain the physical capital stock and the rate of research and development expenditures needed for survival and viability in the industry. Such a rigidity under adverse market conditions may be attributed to the politics of keeping office in a democratic union as well as to a general unwillingness on the part of the rank and file to renounce earlier wage and benefit achievements.⁵ Similar results are experienced when

⁵See, for example, "Many Auto Workers Bitterly Blame UAW for Recent Givebacks," *Wall Street Journal*, May 13, 1983, p. 1.

output per hour of labor is reduced in prosperity or when wage rates are set as a result of hierarchical views of relative wage rates and do not easily respond to changes in industrial competitiveness.

For embattled industries, the logical prescription is 'conditional protection' in which protection against foreign competition is provided for some specified (and finite) period on the prearranged condition that both management and labor undertake specific steps to improve domestic efficiency (11). The protection would provide both the breathing space needed and the catalyst for action. The vita theory's structural view of labor supply allows analysts to focus on the key element of increases in domestic efficiency resulting from simultaneous 'give-backs' by both management and labor. Efforts by the industry to generate straightforward protection could allow workers and executives to preserve wage and salary premia to which they have become accustomed until the industry collapses or production is moved to foreign production centers. The vita theory's emphasis on the structural components of cost show why straightforward (unconditional) protection should not be given (except, perhaps, when the temporary problem finds its roots in the international financial system). The vita theory also has the distinct advantage over the neoclassical theory in that it is able to identify changes in competitiveness attributable to rigidities within the individual industry.⁶

The temporary nature of the problem is much better defined under condition (iii) than under (ii), which merely conceives of the po-

⁶The existence of a wage premium will tend to impede movement out of an industry since the costs to the worker of changing industries will involve a loss of perceived quasi-rent, as well as downgrading or relocation. This aspect of worker remuneration, coupled with the relative generosity of payments to the unemployed under the Trade Adjustment Assistance program, will explain the relative ineffectuality of the Trade Adjustment program in getting workers to move out of declining and into expanding industries (16).

tential for industry survival until and unless new standards of domestic efficiency are achieved. But condition (iii) also lacks automaticity. Management in the industry may be very slow to react when the need is for design improvements. If low profits are the result of import pressures, the industry may be in a low-income trap: the profit rate may not be adequate to finance internally or to generate external capital or debt needed for the development of new models and any new physical capital required.

Protection for embattled industries may be desirable simply because the costs of allowing the market system to enforce the discipline needed may be detrimental to the national economy as a whole. The firms in the industry could go bankrupt during the process of adjustment, either because of the severity of the short-run conditions, or because of the lack of flexibility of the components of the industry. If the industry were potentially viable, this would constitute an undesirable outcome. Another scenario would have only one firm survive in the domestic industry with all of the implications of such an outcome for potential monopoly power. Finally, what is possibly the worst scenario of all is that a country will be reliant wholly upon a foreign industry with collusive capability. Even if a comparative advantage were to swing back to the home country, it could well be impossible for a domestic industry to be started up again in the face of an existing foreign industry enjoying full economies of scale and a mature, ongoing corporate structure.

III. Slowing the Rate of Adjustment

Arguments for protection from foreign competition to slow the speed of, but not to stop adjustment, have two different thrusts: The first is to prevent the waste of industry-specific physical and human capital through senile-industry protection; the second is to reduce labor market congestion.

The case for protection of senile industries is given in detail in (8). It amounts to an argument for 'phase-out' protection as contrasted with a 'hands-off' policy that allows an industry to be destroyed by foreign competition at the speed dictated by the marketplace. This paper is concerned only with the wastage of *human* capital as a result of too fast an adjustment, and with the contribution of the *vita* theory to an analysis of the social costs of that waste.

While the costs of a sudden spurt of imports can most easily be described in terms of the loss of income by the reduction of the market value of the human capital of a single worker, the total cost is the summation of all lost income of all displaced workers. Because of the costs of instituting any barrier to trade, there will be some minimum critical size of industry which warrants the temporary protection which senile industry protection affords.

When the job of an experienced worker with some product-specific human capital is destroyed by import competition, the cost to society and the individual is the difference between the present value of the product-specific human capital that would be achieved with a certain package of protection for the affected industry, and the present value of the worker's human capital in his or her alternative employment. The return in the alternative employment must be measured net of any costs of retraining. If the industry is domestically efficient (no wage premium exists), then the cost to the worker and to society are equal, and any transfer payment from society to the worker merely involves the question of whether or not the worker bears the whole of the cost. If the industry is not domestically efficient, then the worker's cost exceeds the social cost.

Product-specific human capital is attributable to both training and experience. The present value of employment in an alternative occupation will be reduced by any costs of

retraining, by any time spent unemployed and by an inability of the displaced worker to achieve the senile-industry rate of return on *general* human capital. The greater the loss of current (national) income due to the displacement, and the greater the costs of adjustment to the alternative employment, the stronger is the argument for phase-out protection. The larger the net loss, the more gradual the phase-out should be. However, this is not a matter subject to precise computation and the determination of the appropriate package calls for nice judgment on the part of the authorities. The argument for the imposition of senile-industry protection loses strength as faith in the quality of the judgment of the authority declines.⁷

Using K_j to represent the capitalized value of returns to human capital in different industries (k_i), the criteria for senile-industry protection and for retraining can be expressed quite simply as:

$$\text{criterion for protection, } K_j - C > K_g$$

$$\text{criterion for retraining } K_a - R > K_g$$

where K_j is the present value of the human capital in industry j (both general and specific) of those displaced and C is the present cost of protection however imposed.⁸ Both are computed for protection of a specified amount for a specified time. K_g is the capitalized value of the general (transferable) human capital of those displaced. K_a is the capitalized value of the human capital of retrained workers in the alternative industry, a , and R is the present cost of retraining. Both criteria require that the present value of human capital in the senile or the alternative industry exceed the return to the general human cap-

⁷See the remark of Harry Johnson cited in (2, 372, fn. 16).

⁸The costs of protection includes the loss of consumer welfare, as well as any costs of imposition of protectionist measures such as a subsidy.

ital of those displaced from the senile industry. The smaller is K_g —the greater the length of time for which displaced workers remain unemployed and the greater the drop in social product—the stronger is the argument for protection or for retraining. The protection and retraining criteria are not mutually exclusive. In view of the international repercussions of protecting a senile industry (even though such protection could be considered authorized by Clause XIX of the GATT), there is a strong case for retraining if the two criteria are of something like equal magnitude.

The factors affecting K_j are important in understanding the strength of the case for senile industry protection. The excess of K_j over K_g depends upon the amount of industry-specific human capital of workers in the senile industry. This quantity will vary with the age and experience of the workers likely to be displaced. Experience is positively related with specific human capital and additional formal training may be acquired during years employed in the industry (although the value of formal training will increase less quickly with the experience and the age of the worker). Young worker's industry-specific capital will be smaller because of less experience. The costs of retraining and of obtaining alternative employment (the intervening period of unemployment) are also likely to be positively related to age and experience. Older workers may have become less adaptable so that the costs of retraining per unit of product of human capital generated may also be expected to increase with age. This factor is likely to make older workers more willing to downgrade themselves and to seek employment in markets with requirements of human capital lower than their own total capital, but also lower than their own general human capital.⁹ Older industries (with older workforces)

are more likely to warrant senile industry protection.

By its identification of the individual factors affecting the cost of training and of relocation, as well as the determinants of human capital, the *vita* theory provides added insights into the concept of senile industry protection. It also throws added light on to the desirability of positive adjustment policies in the form of retraining (17). A very important factor in the desirability of senile industry protection is the degree to which vacancies exist (or are automatically created) in other cells and to the degree to which the vacancies do or do not match the cells with surplus labor. Senile industry protection cannot be completely separated from the problem of labor market congestion. The closer the cells with vacancies to the cells in which workers are being released, the smaller the costs of retraining, and the larger, *ceteris paribus*, will be K_g because of shorter periods of unemployment.

The main argument for interfering with the free operation of markets in the face of some external change is that social costs will be lowered if government slows the speed of adjustment when labor markets are congested. There are two versions of the labor-market congestion hypothesis: the broader version argues that the market mechanism will work less well to transfer workers into other industries when they become displaced according to the severity of conditions in the national labor market; the narrower version argues that the regional distribution of excess supply and demand in different regional markets will affect the speed of dispersion of workers into other industries. Parsons (18) develops these arguments and tests them empirically. He does not, presumably because of the limitations of his data, introduce the question of the compatibility of skills and skill-levels into his analysis. The introduction of skills and skill-levels to the narrower version is completely suited to analysis by the *vita*

⁹The argument for senile industry protection is not unrelated to the problem of structural unemployment for skilled workers (see Section IV below).

	REGIONS				
	1	2	3	4	5
Senior Executive	0	0	0	0	0
Professional	0	<i>ed</i>	0	0	0
Upper Management	0	<i>ed</i>	0	0	0
Middle Management	0	0	0	0	<i>ed</i>
Highly-skilled Blue-collar	0	0	<i>es</i>	0	<i>ed</i>
Medium-skilled Blue-collar	0	<i>es</i>	<i>es</i>	0	<i>ed</i>
Production Worker	0	<i>es</i>	<i>es</i>	0	0
Unskilled Worker	0	0	0	0	0

FIGURE 1
THE NET DEMAND MATRIX OF LABOR MARKETS*

*Each cell contains a symbol, *ed*, 0 or *es*, which denote respectively excess demand, balance or excess supply in the labor market identified. Positive numbers are associated with *ed* and negative numbers with *es* when actual values are used.

theory. If the disturbance has its origin in international markets, the protection of the declining industry to slow the speed of adjustment is warranted if labor markets are congested.

Figure 1 presents a schematic version of the excess demand and supply matrix of labor markets for a country which has just experienced an increase in the foreign supply of its imports. Starting from a position of full equilibrium, in which all cells in the matrix would have zero excess demand, the shock displaces workers in the five cells identified by *es*.¹⁰ The adjustment of the rate of ex-

change and the increased foreign demand for home-country exports creates excess demand for workers in the five cells identified by *ed*. The severity of a shock and the probability that it will engender labor-market congestion depends upon the magnitude of the displacement and the distance between the cells in the matrix with excess demand and those with excess supply. The distance among regions is assumed to be proportional to the number of columns between excess and deficient markers. The cost impediment to relocation

of the reality which faces present-day policymakers, the absence of bumping and *s*'s in the bottom row is improbable (see Section IV below). The assumption is made that there is no change in the total number of workers demanded.

¹⁰The question of industry-specific skills has been omitted in the interests of expositional simplicity. In terms

is positively related to the distance but less than proportionately. The severity of the shock depends upon the absolute numbers in each cell so that a shock which destroys and creates jobs in the same cell, is not a severe one even though many workers may be displaced. In terms of Figure 1, such a shock would show small (absolute) numbers in horizontally contiguous cells. Labor market congestion exists (and the slowing of the speed of adjustment is warranted) when the cells containing *ed*'s are far distant from those containing *es*'s, and the numbers are absolutely large. The problem is even more severe when the cells with *ed*'s require (substantially) higher levels of skills than those marked with an *es*. The disturbance identified in Figure 1 shows significant potential for labor-market congestion if the numbers involved are large.

Disturbances can come about as a result of other factors than a shift in the mix of demand for goods. Changes in the mix of the labor force and changes in derived demand because of technological change will also bring about changes in the net demand and supply matrix. Disturbances need not (and frequently do not) come singly and events in the international sector may be reinforced or weakened by events taking place in the domestic economy. Indeed, change is always with us, but changes and disturbances which are small, and which do not reinforce each other, are best left to the natural dynamism of the economy. When large shocks occur and reinforce each other, the argument for slowing down the rate of adjustment may become strong. Not all of the adjustment needs to take place on the supply side since firms can change their demand for factors in response to changes in relative factor prices.

Disturbances in the international sector will manifest themselves in a change in the mix of output in the home country. Such disturbances are likely to be particularly important in studying labor-market congestion. First, it

may be easier for governments to design a means for slowing the speed of adjustment to international changes. Second, an international disturbance is more likely, given its size, to bring about labor-market congestion. This characteristic derives from the fact that goods with similar input-mixes will tend to have relatively similar relative cost-advantages over imports. In the absence of industry-requisite inputs, goods can be ranked in their international competitiveness by their mix of factors and the differences in international costs of those factors (9, 89-94). Any change in relative factor costs will exert a concentrated impact on goods with similar input mixes and result in a concentrated group of labor-market cells showing excess supply.

The broader version of the theory of labor-market congestion suggests that adjustment will be more difficult during a recession. All cells in the matrix will have differing excess supplies. It would be efficient, therefore, to slow the introduction of any pre-negotiated reductions in protection when nations are in recession. But this does not warrant the imposition of protection during a recession, since a series of retaliatory tariff-raising efforts will merely aggravate the problems of recession without any reduction in social costs.

The vita theory explains labor-market congestion by identifying sources of changes in the derived demand for labor and other factors of different 'qualities' as well as identifying the impediments to the inter-cell mobility of labor. The vita theory emphasizes the important fact that it will be impossible for surplus labor to adjust quickly to changing conditions beyond its control.

IV. The Special Problem of Low-Skilled Labor

The problem of low-skilled labor is a chronic case of labor-market congestion. While the problem can be traced to the international sector, particularly to the role of

international trade and international direct investment by multinational corporations in integrating the labor markets in countries with chronic excess supplies of labor with those in industrial countries, the potential problem for policymakers is likely to be aggravated severely by a concomitant reinforcing shock in the form of robotization. The domestic shock is not considered here, but clearly it may so aggravate the international disturbance that, together, they may constitute the biggest challenge to economic policy since the depression of the 'thirties'.¹¹

A chronic excess supply of low-skilled workers exists formally when the existing patterns of demand for home production of goods and services generates a derived demand for labor that fully utilizes the supply of (most kinds of) highly-skilled labor before the supply of low-skilled labor approaches exhaustion. Attempts to cure such structural unemployment by aggregate demand measures may be frustrated by bottlenecks in the supply of goods based on intensive high-skilled labor. The capital stock and its embodied technology is assumed given in the short run. The existence of chronic excess supply of low-skilled labor in the United States is verified in (3) and in (12). The latter reports that the unemployment rate of unskilled workers is usually between 12 and 20 percent, depending on how skill is defined, even when the aggregate rate of unemployment is about five percent.¹²

The existence of chronic structural em-

¹¹Given the need for access to developed-country markets by middle-income countries with significant amounts of debt to private financial institutions, the problem cannot be identified simply in terms of the market for labor in industrialized countries. The robustness of the financial sector is intricately involved.

¹²Low-skilled labor does not mean that the displaced worker does not possess acquired skills in his/her own industry, merely that the worker is poorly endowed with general skills applicable in other industries. Since the argument pertains to the three or four lowest strata in Canterbury's system of markets, low-skilled and unskilled will henceforth be used interchangeably. (The relevant rows in Figure 1 are the bottom two rows.)

ployment of low-skilled workers argues that positive adjustment policies are vital if protection is to be avoided. It is improbable that the industrial nations will be able to develop efficient positive adjustment policies without resorting to protection first. The existence of chronic excess supply of low-skilled workers can be attributed to:

- (a) Changes in the pattern of demand in the industrial countries towards goods using highly-skilled labor intensively (13, 224). This process is important only if it outpaces any secular increase in the average level of human capital.
- (b) The replacement of low-skilled jobs by machines at a rate faster than that at which capital displaces labor in general. Implicit in this process are the assumptions that low-skilled jobs are more easily replaced by capital than higher-skilled jobs, that the process takes place more quickly and that changes in relative wage-rates can lead to a reversal. It also implies that low-skilled workers are more highly paid relative to their potential marginal value product than highly-skilled workers because of the social need to employ 'the working poor', the high monetary cost of mere subsistence and any wage premium because of unionization.
- (c) Competition from imports biases the demand for labor away from low-skilled jobs in industrial countries (1).
- (d) Excess (or increasing) numbers of people are locked into low-skilled jobs by virtue of low birth endowments, and by their inability to get work to gain experience.

In terms of the net demand matrix, the chronic excess of low-skilled labor can be attributed to relative increases in the supply of low-skilled labor because of a combination of demographic factors and social conditions (cause d), to a 'bumping' situation set up in the lower strata as moderately-skilled workers are replaced by machines (cause b), and

downgrade themselves in search of employment;¹³ by changes in the derived pattern of demand for labor attributable to new general taste patterns and to new international trading conditions (causes a and c). While some displaced workers are upgrading themselves by their own efforts and outlays, or through training programs instituted by business and government, the distribution of the excess supply of workers is slipping downwards toward the bottom strata. To the extent that the net effects of the four causes are not resolved by individuals acquiring additional skills, they serve to aggravate any structural employment that has previously existed in the lower strata.¹⁴ When the excess supply of labor is chronically concentrated in the lower strata, the ability of industry to adjust its pattern of demand for inputs in response to changes in relative wages is limited by the floor imposed by the money costs of subsistence, and society's concept of a minimum wage. The chronically-unemployed are a residual group of workers with poor vitae that reflect low skill levels and an inability to succeed in the market system. They are unemployable, at first, simply because there is insufficient demand for the class of worker.¹⁵

There is no way of knowing whether or not the neoclassical mechanism of decentralized markets would, in the very long run, effect a cure for labor-market congestion, but the time involved is too long and social costs too high for a simple *laissez-faire* solution. Protection may be warranted to slow down the international dimension of the problem and that protection could last for many years. The process of adjustment will be impeded by the severity of concomitant domestic factors.

¹³It is an important feature of the vita theory that in the short run, wages are inflexible downward and workers search and compete for jobs.

¹⁴Implying that disturbances have outpaced adjustment in earlier periods.

¹⁵Neoclassical analysis does not contemplate such a condition, and therefore cannot be used as a means of analysis.

Geographic relocation of displaced, excess low-skilled workers who face barriers to relocation for want of funds and knowledge is unlikely to solve the problem. If all columns in Figure 1 have *es*'s in the lowest stratum, a successful move by one worker merely replaces the potential employment of another. Relocation may facilitate downgrading and bumping.

Canterbury recognizes (5, 12) but does not fully develop the possibility of limits of the abilities of some people to acquire skills. He also identifies the existence of such constraints which could prevent the neoclassical mechanism from being successful even in the very long run. For people handicapped by their birth vita, costs of the acquisition of capital may quickly become exorbitant. Even more seriously, an innate low IQ, or lack of encouragement or opportunity to acquire human capital by social conditions, can constrain human capital (*k*) acquisition by an individual to a very low level. Familial (or peer group) values can cause a permanent inability to acquire human capital, notwithstanding the provisions for formal education made by the state. Under these conditions, it is improbable that non-human capital will be available to overcome the handicaps brought on in the early, formative years. It is, therefore, quite possible for children to be entrapped in low-*k* levels; to be born to parents of low skills and low income in a family environment in which the value of human capital is neither understood nor appreciated. Such a low-*k* trap could easily derive from perceived discrimination against minorities in formal education and/or in actual employment conditions. The trap could also exist because of a simple lack of opportunity for vertical mobility totally unconnected with ethnic discrimination.

Workers with very low potential *k* for the reasons outlined in the preceding paragraph may well constitute a significant fraction of the total workforce. If the number of jobs available for the low-skilled is less than this

pool, then hard-core structural unemployment of the low-skilled must result. If groups in this segment of the population have higher than average net reproduction rates, the percentage of domestic low-skilled workers in the population is likely to increase, and with it the number of low-skilled structurally unemployed. The absence of demand for their services may be the single most important factor contributing to the existence of the self-perpetuating low-*k* trap.

The case for protecting industries which use low-skilled labor intensively transcends the need to protect the industry, and focuses directly upon the kind of jobs which will be generated. The problem must therefore be seen not at an industry, but at a national level, and the promotion of jobs for the low-skilled must be applied to domestic industries equally as much as to industries producing tradable goods. Positive programs are needed, since protection here is necessarily a second-best solution. Protection will probably take the form of a subsidy of low-skilled jobs in order to increase employment of low-skilled workers (defined in terms of some range of wage rates above the minimum wage). Chronic unemployment of the low-skilled does not justify inept forms of protection. There is little point in improving the access of such industries to capital markets (through government guarantee programs, for example) when such measures would merely increase the capital intensity of the production methods used in those industries. It is vital to recognize the reason for the protection and its very long run nature.

If the scope of the problem of chronic unemployment exceeds the ability of governments to prevent the existence of a reserve army of low-skilled unemployed, then most industrial societies must face serious reorganization of their network of social policies. Perhaps more difficult, societies may need to change their values so that lack of a job no longer constitutes some kind of second-class citizenship.

The use of the vita theory with its explicit recognition of imperfect mobility among markets, the difficulties of and time needed for retraining, and the limitations of the birth vitae provides both a fuller understanding of the problem of chronic or very long run unemployment of the low-skilled, as well as its intractability. The development of positive programs is vital. If inevitable secular forces (domestic and international) tend to transmit the impact of change to the lowest strata of the labor markets, the sheer costs of increasing skill levels and the limits imposed by birth vitae require something more than an instinctive reliance on the invisible hand. Among these measures, protection is merely a partial solution (at best) and has adverse effects on both consumers and third-world exporters alike. Protection will reduce the social cost of the importing nation without eliminating the basic cause of the problem.

V. Conclusion

Canterbery's "vita theory points toward a structural view of labor demand. . . In describing such a process, we lose the determinism of the neoclassical labor market but gain some realism." (4, 19). It is precisely those gains in realism that allow the identification of the causal forces which contribute to the formation of human capital, and the difficulties of adaptation of human capital when mismatches exist in supply and demand in different cells of the national labor market. The vita theory casts important light on the costs and benefits of employment-related arguments for protection.

The fervent opposition of many international economists to all forms of protection (with the possible grudging exception of national defense industries) has two separate roots. The first is that their analyses are invariably based on models of static, long-run or moving equilibria in which all markets are assumed to clear. In these models a perpetuity of efficiency gains is weighed against

transitory costs of adjustment and the two criteria given above are automatically found wanting. The arguments presented in this paper rely on a more sophisticated economic framework. Increased sophistication of the economic argument requires increased sophistication in policy design by the government. Authorities must be capable of and be prepared to terminate protection for senile and embattled industries (*pour encourager les autres*). They must also be prepared to vote the funds needed for positive manpower policies. Dyed-in-the-wool free-traders posit that the political system does not allow for termination and that the political strength of the weak industries (and of their associates) will result in any protection becoming permanent. This is a potentially valid criticism of all temporary protection, although one would hope that the political system is capable, when sufficiently educated, of writing legislation with built-in diminutions of protection through time, and of sticking by those diminutions. The system will not develop that expertise and commitment if international economists are not prepared to consider propositions more subtle than neoclassical equilibria.

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