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Tax Effects on Investment in Morocco

by

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EXECUTIVE SUMMARY

This study was undertaken in support of Morocco's Private Sector Development program, whose objectives include enlarging the role of the private sector and attracting foreign investment. The objective of our study is to indicate how the tax system affects these goals by estimating *effective* tax rates on different types of investment in Morocco and some Mediterranean countries also seeking foreign investment. The term *effective* simply means that there are tax provisions and factors other than statutory tax rates which affect the real burden of tax on an investment and all of these influences need to be reflected in a single measure.

Our study found that effective corporate tax rates on investment have been more than halved in Morocco since the corporate income tax came into effect in 1986. In 1986 effective corporate tax rates on investments by domestic firms were 50.3% for manufacturing and 44.2% for hotels. Comparable tax rates in 1995 for these sectors were 24.2% and 19.9% respectively. Most of this reduction has taken place as a result of changes in recent annual Finance Laws. The elimination in 1995 of the special import duty on imports of capital goods has been the most important source of change, followed by the introduction of accelerated declining balance depreciation in 1994, and the incentive to increase equity in the 1995 Finance Law.

In comparisons with Greece and Portugal, effective tax rates on investment in Morocco were found to be similar to or slightly lower than those in Portugal, even without considering the incentives in the Moroccan investment codes. Tax burdens on investment in Greece were generally lower than those in the other countries. The Moroccan authorities can take considerable comfort from these comparisons. They need not respond to the familiar refrain from special interests in all countries that overall tax rates need to be lowered in crash efforts to attract investment.

Morocco has for many years had a series of investment codes whose purpose is to encourage investment in particular sectors and regions. Interestingly enough, the study finds that the tax holidays given in these codes have virtually no incentive effect for some types of investments. Thus, the effective tax rates for typical investments by multinational firms in the service industries are 13% without tax holidays, 12.2% with a 5 year corporate tax holiday and 11.2% with a 10 year corporate tax holiday. Such differences may not be material to investors given the importance of other factors affecting the investment decision. The effects of the tax holidays are somewhat larger for manufacturing, where typical investments by multinational firms face effective tax rates of 19.7% without tax holidays, 15.7% with a five year tax holiday and 10.5% with a ten year tax holiday. These results reflect complex interactions between the holidays and the structure of different types of investments. They also reflect the effects of general tax reductions in the Moroccan 1994 and 1995 Finance Laws, however. Some of the latter provisions, such as the introduction of accelerated declining balance depreciation, in effect comprise substitutes for the incentives provided by tax holidays.

Irrespective of these findings, the study questions the merits of tax holidays as incentives. Tax holidays reward the creation of new *firms* rather than new *investment*, and are susceptible to use in several types of tax avoidance schemes. Further, we note that a separate econometric enquiry for 14 countries in the Mediterrananean basin by two of the authors recently found no significant statistical

relationship between tax holidays and foreign investment. Interestingly enough, however, the study did find a significant relationship between the size of effective tax rates and foreign investment.

Our analysis did show that there remain differences in the effective tax rates on investments in Morocco by types of assets, industries, methods of financing and origin of the investor, i.e., whether domestic or foreign. Even without taking account of incentives in the investment codes, effective tax rates on investment in the different types of assets in our study ranged from minus 132% to plus 67%, depending on the method of financing investments. The removal or reduction of these differentials in effective tax rates, with a view to reducing the influence of the tax system on investment choices, is a suitable objective for future tax policy.

The study also suggests that a formal evaluation process should be instituted to see if some incentives established to attain non-market policy goals (such as the regional incentives) are obtaining their objectives. In general, however, the study favors abolishing the principal tax incentives in the investment codes and using any savings from removing such incentives to bring aggregate rates down even further. This would also have the useful side-effects of simplifying administration and thereby reducing administration and compliance costs, increasing transparency from a governance point of view and increasing the role of the market in determining economic success. Alternatively, if it is felt that circumstances warrant a general stimulus for investment, a selective investment tax credit which, unlike many present incentives, favors long-lived investment, might be introduced.

In a very real sense, such emphases on government's function in "levelling the playing field" for private investors and thereby allowing the market to promote efficiency in the allocation of resources would play a key role in Morocco's current policy thrust to promote development in the private sector.

Régime fiscal et ses effets sur l'investissement au Maroc

Résumé analytique

La présente étude a été entreprise à l'appui du programme marocain de développement du secteur privé, dont les objectifs comprennent un élargissement du rôle du secteur privé et la recherche d'investissements étrangers. Notre étude a pour objet d'indiquer quels effets le régime fiscal exerce sur ces objectifs en estimant les taux effectifs d'imposition de divers types d'investissement au Maroc et dans quelques autres pays de la région méditerranéenne également à la recherche d'investissements étrangers. Le terme "effectif" signifie tout simplement qu'il existe des dispositions fiscales et des facteurs autres que les taux d'imposition légaux qui contribuent à déterminer la charge réelle de l'imposition des investissements; aussi toutes ces influences doivent-elles se traduire par une mesure unique.

Notre étude a constaté que les taux effectifs de l'impôt frappant les investissements des sociétés ont été réduits de plus de moitié depuis l'entrée en vigueur de l'impôt sur les bénéfices des sociétés en 1986. Cette année-là, les taux effectifs de l'impôt sur les investissements des sociétés marocaines étaient de 50,3 % pour les entreprises manufacturières et de 44,2 % pour les hôtels. En 1995, les taux d'imposition comparables sont respectivement de 24,2 % et 19,9 %. Cette réduction a principalement été enregistrée à la suite de modifications intervenues dans les Lois de finances des dernières années. La suppression, en 1995, du prélèvement fiscal à l'importation de biens d'équipement est la principale source de ces modifications, suivie de l'adoption, en 1994, de l'amortissement dégressif accumulé et de l'incitation à l'augmentation des fonds propres inscrite dans la Loi de finances de 1995.

Lors des comparaisons effectuées avec la Grèce et le Portugal, il a été constaté que les taux effectifs de l'imposition des investissements au Maroc étaient semblables, voire légèrement inférieures, à ceux du Portugal, même abstraction faite des incitations contenues dans les Codes des investissements du Maroc. La charge fiscale pesant sur les investissements en Grèce était généralement plus faible que celle des autres pays. Les autorités marocaines peuvent se féliciter de cette comparaison. Elles ne doivent pas se laisser influencer par le refrain habituel des groupes de pression, selon lequel les taux globaux d'imposition doivent être abaissés pour attirer à tout prix des investissements.

Le Maroc dispose depuis plusieurs années d'une série de codes d'investissement dont le but est d'encourager les investissements à des secteurs et régions spécifiques. Il est intéressant de noter que l'étude démontre que les exonérations fiscales accordées dans le cadre de ces codes n'ont pratiquement aucune effet incitatif sur certains types d'investissement. Ainsi, les taux effectifs d'imposition pour les investissements types des entreprises multinationales du secteur des services sont de 13 % sans exonération fiscale temporaire, de 12,2 % avec une exonération fiscale sur cinq ans et de 11,2 % avec une exonération fiscale temporaire sur 10 ans. Ces écarts ne sont pas vraiment conséquent pour les investisseurs compte tenu de l'importance des autres facteurs affectant les décisions en matière d'investissement. L'impact de l'exonération fiscale est quelque peu plus important pour les entreprises manufacturières, où les investissements des entreprises multinationales doivent faire face à des taux d'imposition effectifs de 19,7 % sans exonération temporaire, 15,7 % dans le cadre d'une exonération sur cinq ans, et 10,5 % dans le cadre d'une exonération sur 10 ans. Ces résultats reflètent les interactions complexes entre les exonérations fiscales et la structure des différents types d'investissement. Ils reflètent toutefois aussi les effets des réductions générales de l'impôt intervenues dans les lois des finances de 1994 et 1995. Certains dispositifs de ces dernières, tels que l'introduction d'un amortissement dégressif accumulé comprennent en fait des alternatives aux incitations fournies par les exonérations fiscales.

Quelles que soient ces conclusions, l'étude remet en question les avantages des exonérations fiscales temporaires en tant qu'incitations. Les exonérations fiscales favorisent la création de nouvelles *entreprises* plutôt que celle de nouveaux *instruments* et sont susceptibles d'être utilisées dans divers plans d'évasion fiscale. Par ailleurs, nous notons qu'une enquête économétrique séparée couvrant 14 pays du bassin méditerranéen, réalisée récemment par les auteurs de la présente étude, n'a pu établir aucun lien statistique significatif entre les exonérations fiscales temporaires et l'investissement étranger.

Notre analyse a démontré que subsistent des différences des taux effectifs sur les investissements au Maroc suivant le type d'actifs, les branches d'activité, les méthodes de financement et l'origine des investisseurs, qu'ils soient nationaux ou étrangers. Même abstraction faite des incitations prévues aux Codes des investissements, les taux effectifs sur les divers types d'actifs examinés dans notre étude s'étalent entre moins 132 % et plus 67 %, selon la méthode de financement des investissements. L'élimination ou la réduction de ces différences de taux effectifs, dans le dessein d'atténuer l'influence du régime fiscal sur les choix d'investissement, est un objectif qui conviendrait à une future politique fiscale.

L'étude semble aussi indiquer qu'il serait bon de procéder à une évaluation formelle, pour s'assurer si certaines incitations adoptées à des fins autres que le marché (par exemple, les incitations à caractère régional) atteignent vraiment leurs objectifs. En général, toutefois, l'étude préconise d'abolir les principales incitations fiscales des codes des investissements et d'utiliser toutes les économies ainsi réalisées pour un abaissement supplémentaire des taux globaux. Ceci aurait aussi comme effet secondaire utile de simplifier l'administration; il s'ensuivrait une réduction des coûts d'administration et d'observation des règles, une augmentation de la transparence de la conduite des affaires publiques et un renforcement du rôle du marché dans la détermination du succès économique. Si, par contre, on estime que les circonstances justifient une stimulation générale de l'investissement, un crédit sélectif d'impôt ou à l'investissement qui, à la différence d'un bon nombre d'autres incitations, favoriserait les investissements à longue durée de vie utile, pourrait être adopté. Une fonction du gouvernement, à laquelle celui-ci doit attacher une grande importance, est d'ouvrir aux investisseurs privés une égalité de chances, ce qui permettrait aux forces du marché d'accroître l'efficacité de l'affectation des ressources. Ceci jouerait un rôle essentiel dans l'orientation actuelle de la politique du Maroc qui est de promouvoir la valorisation du secteur privé.

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أثر الضرائب على الاستثمار في المملكة المغربية

موجز تنفيذي

أجريت هذه الدراسة بهدف مساندة «برنامج تنمية القطاع الخاص في المملكة المغربية»، الذي تشمل أهدافه توسيع نطاق الدور الذي يسهم به القطاع الخاص واجتذاب الاستثمارات الأجنبية. وترمي دراستنا هذه الى ايضاح كيفية تأثير نظام الضرائب على هذه الأهداف، عن طريق وضع تقديرات للأسعار (المعدلات) الفعلية للضرائب المفروضة على شتى أنواع الاستثمارات في المملكة المغربية وبعض بلدان حوض البحر المتوسط الساعية أيضا لاجتذاب الاستثمارات الأجنبية. ويعني اصطلاح «فعلي» ببساطة أن هناك أحكاما وعوامل ضريبية أخرى غير أسعار الضريبة المقررة قانونا تؤثر في العبء الضريبي الحقيقي المفروض على الاستثمار المعني، ويجب أن يتم تجسيد كافة هذه المؤثرات في مقياس معياري واحد.

خلصت هذه الدراسة التي أجريناها الى أن الأسعار الفعلية لضريبة الشركات المفروضة على الاستثمارات قد خفضت بأكثر من النصف في المملكة المغربية منذ أن سرى مفعول هذه الضريبة عام ١٩٨٦. ففي ذلك العام، كانت الأسعار الفعلية لضريبة الشركات المفروضة على الاستثمارات التي تنفذها شركات محلية ٣ر٥٠ في المائة بالنسبة للصناعات التحويلية و٢ر٤٤ في المائة بالنسبة للفنادق. أما في عام ١٩٩٥ فقد انخفضت هذه الأسعار بالنسبة للقطاعين المذكورين الى ٢ر٢٤ في المائة و٩ر١٩ في المائة، على التوالي. وجرى معظم هذا التخفيض نتيجة التغييرات التي طرأت على قوانين المالية العامة السنوية التي سنت في السنوات القليلة الماضية. وكان الغاء رسم الاستيراد الخاص المفروض على الواردات من السلع

الرأسمالية أهم مصادر التغيير، يليه ادخال نظام الاستهلاك المعجل للرصيد المتناقص، في عام ١٩٩٤، وثم ما اشتمل عليه قانون المالية العامة لعام ١٩٩٥ من حوافز لزيادة رؤوس أموال الشركات.

ولدى مقارنة هذه الأسعار بمثيلاتها في اليونان والبرتغال، تبين أن الأسعار الفعلية لضريبة الشركات المفروضة على الاستثمارات في المملكة المغربية مماثلة للأسعار السارية في البرتغال، أو أقل منها قليلا، حتى مع غض النظر عن الحوافز التي تنص عليها قوانين الاستثمار المطبقة في المملكة المغربية. أما الأعباء الضريبية المفروضة على الاستثمارات في اليونان فقد تبين بصفة عامة أنها أدنى من الأعباء المماثلة في البلدين الآخرين. وبوسع السلطات المغربية أن تشعر بارتياح كبير من هذه المقارنات. فهي ليست مضطرة للاستجابة للنداءات المألوفة الصادرة عن أصحاب المصالح الخاصة لتخفيض أسعار الضرائب بصفة عامة في اطار بذل جهود عاجلة لاجتذاب الاستثمارات.

سنت المملكة المغربية منذ سنوات عديدة سلسلة من قوانين الاستثمار الرامية لتشجيع الاستثمارات في قطاعات ومناطق معينة. ومن المثير للاهتمام أن هذه الدراسة خلصت الى أن الاعفاءات الضريبية المؤقتة التي نصت عليها هذه القوانين لم يكن لها تقريبا أي أثر محفز لبعض أنواع الاستثمار. وهكذا فان الأسعار الفعلية للضريبة على الاستثمارات التي تنفذها عادة الشركات المتعددة الجنسيات في الصناعات الخدمية تبلغ ١٣ في المائة بدون وجود اعفاءات ضريبية مؤقتة، و٢ر١٢ في المائة عند وجود اعفاء مؤقت من ضريبة الشركات مدته ٥ سنوات، و٢ر١١ في المائة عند وجود اعفاء مؤقت من ضريبة الشركات مدته ١٠ سنوات. وقد لا تكون هذه الفروق كبيرة بالنسبة للمستثمرين نظرا للأهمية التي تتمتع بها عوامل أخرى تؤثر قرار تنفيذ الاستثمار أو عدم تنفيذه. غير أن آثار الاعفاءات الضريبية المؤقتة أكبر نوعا ما بالنسبة للصناعات التحويلية، حيث تفرض ضرائب على الاستثمارات التي تنفذها عادة الشركات المتعددة الجنسيات تصل أسعارها الفعلية الى ٧ر١٩ في المائة بدون وجود اعفاءات

ضريبية مؤقتة، وتهبط الى ٧ر١٥ في المائة عند وجود اعفاء مؤقت مدته ٥ سنوات، والى ٥ر١٠ في المائة عند وجود اعفاء مؤقت مدته ١٠ سنوات. وتعكس هذه النتائج التفاعلات المعقدة بين الاعفاءات المؤقتة وبين هياكل مختلف أنواع الاستثمارات. كما أنها تعكس آثار التخفيضات العامة في الضرائب التي نصت عليها قوانين المالية العامة المغربية لعامي ١٩٩٤ و١٩٩٥. غير أن بعض الأحكام التي أدخلت في الآونة الأخيرة - مثل الاستهلاك المعجل للرصيد المتناقص - تشكل في الواقع بدائل للحوافز التي تتيحها الاعفاءات الضريبية المؤقتة.

وبغض النظر عن هذه النتائج، تشكك هذه الدراسة في جدوى الاعفاءات الضريبية كحوافز مشجعة للاستثمار. اذ أنها في الواقع تعتبر مكافأة على انشاء شركات جديدة وليس على تنفيذ استثمارات جديدة، كما أنها عرضة للاستخدام في عدة أنواع من خطط تجنب دفع الضرائب.

وأظهر التحليل فعلا أنه ما زالت هناك فروق في الأسعار الفعلية للضرائب المفروضة على الاستثمارات في المملكة المغربية، حسب أنواع الأصول، والصناعات، وطرق التمويل، وأصل المستثمر، أي ما اذا كان محليا أم أجنبيا. وحتى مع غض النظر عن الحوافز التي تنص عليها قوانين الاستثمار، اتضح من هذه الدراسة أن الأسعار الفعلية للضرائب المفروضة على الاستثمار في شتى أنواع الأصول تراوحت ما بين - ١٣٢ في المائة و٦٧ في المائة، تبعا لطريقة تمويل الاستثمار المعني. وتعتبر ازالة أو تخفيض هذه الفروق في الأسعار الفعلية للضرائب - بغية تخفيض تأثير نظام الضرائب على أنواع الاستثمارات التي يمكن الاختيار من بينها - من بين الأهداف الملائمة للسياسات الضريبية التي ستوضع في المستقبل.

كما توحي الدراسة بأنه يجب أن يتم ادخال عملية تقييم نظامية للتأكد مما اذا كانت بعض الحوافز التي وضعت لتحقيق أهداف غير سوقية للسياسات (كالحوافز الخاصة بالاستثمار في مناطق معينة) تحقق الهدف من وضعها أم لا. غير أن هذه الدراسة تحبذ بصورة عامة الغاء

الحوافز الضريبية الرئيسية التي تنص عليها قوانين الاستثمار، والاستفادة من أي وفورات ناجمة عن الغاء هذه الحوافز لاجراء المزيد من التخفيض في الأسعار العامة للضرائب. ومن شأن هذا أيضا أن يسفر عن آثار جانبية مفيدة تتمثل في تبسيط ادارة شؤون الضرائب، مما يخفض التكاليف الادارية وتكاليف ضمان التقيد بالنظام الضريبي، ويزيد الوضوح والعلانية من منظور نظام وممارسة سلطة الادارة، فضلا عن زيادة دور السوق في تحديد النجاح الاقتصادي للاستثمارات. أما اذا كان يسود شعور بأن الظروف تبرر وجود حافز عام للاستثمار، فمن الممكن بدلا عن ذلك ادخال نظام الخصم الضريبي الانتقائي الذي يحبذ الاستثمارات الطويلة الأجل، على نقيض ما يفعله العديد من الحوافز المطبقة حاليا.

وفي الواقع العملي، فان من شأن التأكيد على وظيفة الحكومة في «تحقيق المساواة وتكافؤ الفرص» لمستثمري القطاع الخاص - بما يمكّن السوق من تعزيز كفاءة تخصيص الموارد - أن يسهم بدور كبير التوجه الحالي للسياسات المغربية نحو تعزيز تنمية القطاع الخاص.

I. INTRODUCTION

The Moroccan Government and private sector are at present formulating a Private Sector Development (PSD) program to guide the development of the private sector in that country in the next 10-15 years. Principal features of the program are to provide key objectives for private sector development, define policy reforms and institutional measures needed to achieve these objectives and establish measurable indicators to monitor progress towards such goals. The present study is being undertaken as part of the Bank's work in support of the Morocco PSD program.[1]

A climate conducive to investment will clearly be a key element to success of the PSD program. An appropriate tax regime is, in turn, an important part of such a climate. In this respect, businessmen in Morocco -- especially in large and medium sized industries -- have indicated in past surveys that they consider high tax rates to be one of the three principal factors that constrain their expansion.[2] Although the rates have been higher in the recent past, the statutory corporate tax rate of approximately 39.6% in 1995 appears to be only slightly on the high side by international standards: Mintz and Tsiopoulos report a "worldwide norm of 35 to 40% for statutory corporate tax rates."[3]

Other features of a tax system besides the size of tax rates are also important. In particular, a tax system conducive to efficiency and growth should in general be neutral in its effects on alternative investments so that it is the market and not the tax system that determines whether investments are successful. Only if the market fails to achieve certain objectives, such as preventing damage to the environment or investing sufficient funds in research, is it desirable from the point of view of efficiency to use the tax system to achieve an allocation of resources different from what would otherwise be produced. A good tax system also contributes to efficiency in the allocation of resources if it minimizes administration and compliance costs and changes behavior as little as possible. A tax system that minimizes bureaucratic discretion and is transparent also contributes to good governance.

The goal of this study is to estimate effective tax rates on business investment in Morocco. The term effective merely means that there are factors other than nominal or statutory tax rates that need to be taken into account in determining the burden of the tax system on investment, including tax incentives such as accelerated depreciation and non-tax incentives such as cash grants. We wish to determine, among other things, whether the burden of taxes is similar between alternative investments and, if there are differences, to what extent they are intended by the authorities and meet alternative policy goals (e.g., equity in treatment of small and large business). We also wish to focus attention on comparisons of effective tax rates between domestic and foreign-owned investments, primarily because

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1 For background documents, see in particular World Bank, MENA Region, *Strengthening the Private Sector in Morocco*, Report No. 11894-MOR, June 30 1994; and *Developing Private Industry in Morocco*, Report No. 11557-MOR, 2 July 1993. For a comprehensive assessment of factors affecting private investment in the Middle East and North Africa Region of the World Bank based on interviews with decisionmakers in large multinational firms, see Andrew Ewing, *Attracting Private Investment: Capitalists' Perceptions of the Investment Climate in Europe, the Middle East and North Africa*, EMENA Technical Department Regional Study, Industry and Energy Division, October 1992.

2 See World Bank, *Strengthening the Private Sector in Morocco*, p. 13.

3 See Jack M. Mintz and Thomas Tsiopoulos, *Corporate Income Taxation and Foreign Direct Investment in Central and Eastern Europe*, World Bank, Foreign Investment Advisory Service, Occasional Paper 4, 1992, p.13.

Morocco is actively seeking foreign investment in competition with other developing countries in the Mediterranean region but also because foreign companies have better access to international financial markets than purely domestic firms. The ultimate objective of the calculations is to provide an aid for use in designing a more growth-oriented tax system in Morocco that does what the authorities intend.

Background

In order to understand Morocco's tax system, one requires an understanding of the country's recent history. In the 1970's, ambitious expenditure programs were partly fueled by a windfall in revenues caused by a tripling in the price of phosphate rock, which accounted for one-third of export revenues. The increase in public expenditures at this time far exceeded this windfall, however: between 1970 and 1981 government spending as a *share* of GDP nearly doubled, rising from 20.9% to 36.6 %. In the same period, revenues only rose from 17.7% to 22.6% of GDP; an increase attributable to large hikes in tax rates as well as to the windfall in export revenues. By 1982, the resulting budget deficit on a commitments basis was over 14% of GDP and was largely financed by running up foreign debt. A combination of the terms of trade turning against Morocco (following a simultaneous decline in phosphate and a rise in oil prices) and rising interest rates on foreign debt, led to financial and balance-of-payments crises in the early 1980's. In 1983, Morocco's foreign exchange debt amounted to as much as 120% of GDP and 338% of foreign exchange earnings.[4]

The last decade has seen Morocco clawing its way back from this 1983 crisis to macroeconomic stability. Tight fiscal discipline and a series of structural reforms have succeeded in reducing the deficit (on a commitments basis) to 3.2% of GDP in 1993, in which year convertibility of the dirham was also restored.

Tax Reform in the 1980's

Tax reform was one of the important structural reforms which have contributed to the regaining of macroeconomic stability. Even prior to the 1983 crisis, the Moroccan Government had requested IMF technical assistance in reforming its tax structure. Recommendations in a resulting 1979 report by authors Tanzi, Griffith and De Wulf provided a guide to many of the structural reforms to be introduced over the next decade. The *Loi Cadre* (framework law) of 1984 indicated the government's intention to undertake comprehensive tax reform, and subsequent reform has included introduction of new taxes, base broadening and simplification of rate structures for existing taxes, tax rate reduction and improved enforcement.

Several major new taxes have been introduced since the *Loi Cadre* was passed. A value-added tax was introduced in 1986 to replace the old cascading turnover taxes on goods and services; a new tax on corporate profits was also introduced in 1986; and a new personal income tax in 1989. The latter tax was intended to be a global income tax. It replaced "schedular" income taxes where income was taxed at different tax rates according to its source (e.g., rents, wages, etc). A petroleum levy was also introduced in 1986 to capture the windfall gains from falling international oil prices. Finally, a

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[4] See World Bank, MENA Region, *The Kingdom of Morocco: Issues and Prospects in the Public Sector*, Report No. 10157-MOR, Washington, D.C., June 1992, p.3. We have updated some figures to reflect revised data.

12.5% uniform import tax, the Prélèvement Fiscal à l'Importation (henceforth the PFI), was also introduced at the beginning of 1988 to replace the former Special Import Tax and the relatively distortionary stamp duty.

Statutory tax rates for the various tax bases have been successively lowered since the *Loi Cadre* was passed. Tax rates had previously risen substantially during the period of rapid expenditure growth before the fiscal crisis in 1983. From 1970 to the early 1980's, business profit tax rates rose from 43 to 56%, average import duties (including surtaxes) rose from 15 to 28%, sales taxes on goods rose from 15 to 19% and on services from 7 to 12%.

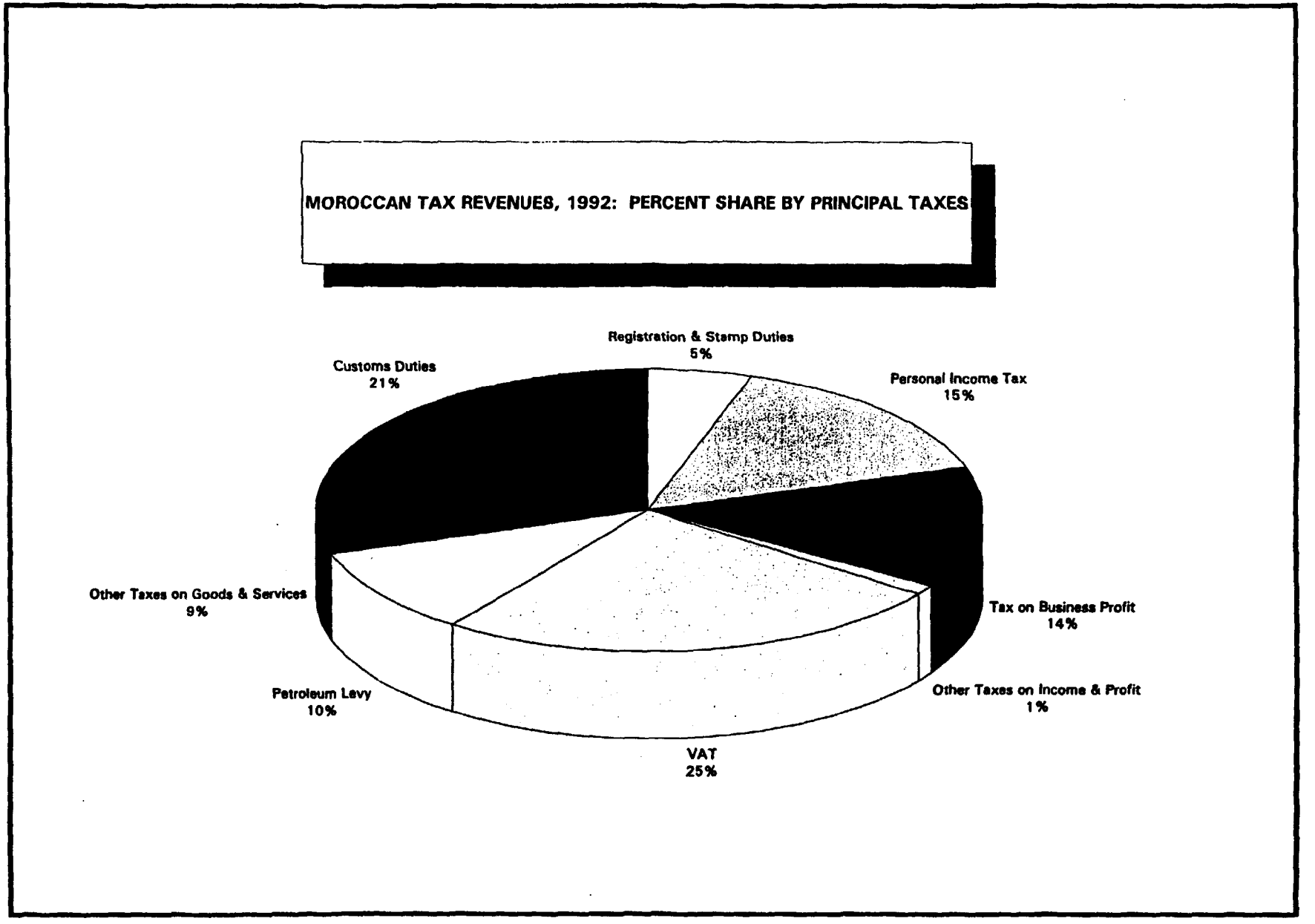
By way of comparison, the 1994 Finance Law is the latest in a succession of annual Finance Laws to reduce corporate tax rates, in this case to 39.6% (including surtax) as compared to the level of 49.5% (including surtax) when the tax was introduced in 1986. We should also note that the highest marginal personal income tax rate in the 1994 Finance Law is 47%; whereas the highest marginal tax rate before reform was 63%.

Composition of Moroccan Taxes

The recent composition of Moroccan taxes is indicated in **Figure 1**. It can be seen that the Moroccan tax system is dominated by indirect taxes that do not vary with the circumstances of the individual. Indeed, Figure 1 somewhat conceals this dominance by indirect taxes since the personal income tax component includes taxes on interest income, on dividends, and on capital gains in real estate which are essentially flat taxes whose rates do not vary with the income of the individual. By way of contrast, the wage and salary component of personal income tax -- which does, of course, vary with the circumstances of the individual -- was only 12.1% of total tax revenue in 1992.

Figure 1 also indicates that the tax on business income and profits only accounts for about 14% of tax revenue, while other categories of indirect taxes such as those on international trade and the VAT account for much larger shares of tax revenue. Figure 1 also indicates that stamp taxes and taxes for registration of business account for about 5% of tax revenue. The latter levies are clearly more than just a user fee for registering business and are employed as a general measure of raising revenue. The relief from these taxes offered as an incentive in the various investment codes is therefore not inconsequential.

Figure 1



SOURCE: Ministry of Finance, Government of Morocco

Tax and Expenditure Incentives for Investment

While it is important to acknowledge how far the tax system has moved since passage of the *Loi Cadre* towards simplification and uniform common law treatment of all taxpayers, a striking feature of the Moroccan tax system remains the number of instances in which particular sectors of the economy, industries or other classifications of economic activity are singled out for special treatment. Such extensive intervention in markets speaks to a belief in policy fine-tuning that is uncommon among fiscal authorities nowadays. It also speaks to a past lack of faith in markets or market solutions that does not accord with the current thrust of government policy.

One should start any description of such special treatment by noting that agriculture, although accounting for just under 20% of Moroccan GDP in most recent years, is exempted from paying direct taxes until 2020. Further, the contribution of agriculture to direct taxes was never great. Under the previous tax provisions, about one-third of farmers were already exempt from direct tax. Tax revenues from agriculture amounted only to about 1% of revenues in the early 1980's, after which some years of drought and consequent crop failures led to the total exemption from direct taxes for the sector. Some calculations of indirect taxes paid by the agricultural sector on inputs have been made, but they do not permit comparisons with the indirect tax burden paid by other sectors of the economy.[5] Our analysis will not deal with the taxation of agriculture.

Apart from agriculture, there are separate investment codes providing tax and cash incentives for the industrial, tourism, mining, handicrafts, real estate, professional training and maritime sectors of the economy. There are additional incentives for exporters, regardless of the sector of their activity, for small business, and for investments which economize on energy and water or preserve the environment. Both the industry and tourism codes also attempt to promote regional balance by favoring activity outside the Casablanca area. The incentives provided under the industry code vary depending on whether a new venture or an expansion of an existing activity is being undertaken.[6]

Nor are incentives limited to the formal investment codes. "Conventions," or entirely ad hoc arrangements, may be negotiated with foreign firms offering substantial programs of investment. A number of such conventions have been negotiated over the years.

Finally, the goals outlined above are now or have been promoted at one time or another by a myriad of incentive devices, including complete and partial corporate tax holidays for varying lengths of time, reserves for investment which can be accumulated tax-free from business income, taxation of real rather than nominal capital gains in the case of real estate, accelerated depreciation, relief from import duties and VAT levied on imports of capital goods and inputs for production, subsidies

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5 Jean-Paul Azam, "*Tax Incidence on Agriculture in Morocco 1985-1990*", CERDI, University of Auvergne (France) and CSAE, Oxford (U.K.,), Typescript, The World Bank, Middle East and North Africa Region, Agriculture Operations Division, November 1993.

6 A thorough description of the various codes and their history, as well as a cogent analysis of their effects for 1986, is provided by Mr. Jamil Berdai, *Les Codes d'Encouragement aux Investissements pour les Principaux Secteurs Productifs*, Typescript, Rabat, May 1991.

varying inversely with the size of employment of the firm, grants for small firms to acquire land, subsidies for borrowing costs, and relief from registration fees.

The investment codes have changed over time and some of their benefits have been reduced as a measure of fiscal restraint. Consideration has also been given to replacing the eight separate investment codes by a single centrally administered investment code. There have been three principal investment codes since Morocco achieved independence: those of 1960, 1973 and 1983. The latter set of codes was modified in the Finance Laws of 1987 and 1988 by various restrictions on benefits, such as the periods for which tax holidays applied.[7]

Care has to be taken in assuming that the provisions in legislation are actually being applied, however. In this connection, it appears that cash subsidies for small business by size of employment and for purchase of land may be available in theory but not in practice.[8] Exporters also asserted that applications for refunds of the former special import duty on imports, the PFI, involved so much red-tape and such long delays in obtaining payment that firms may not have bothered to apply for such relief.

Quantification of Incentives and Effective Tax Rates

The sheer variety of investment incentives and tax treatments of investment naturally invite questions about their quantitative significance. There is an easily perceived need to take these disparate incentives and convert them into common measures of value so that they can be added up and compared. In this way, one can determine the real burden those making an investment face taking into account such factors as nominal tax rates, tax and non-tax incentives, the impact of inflation and sources of financing.

There have been several attempts to fill this need for quantitative measures of the tax burden on investment in Morocco; our enquiry being only the latest of five attempts of which we are aware. Three previous studies covering several sectors of the economy excluding agriculture were respectively those by Mateus[1988];[9] Devereux, Pearson and Pigato [1990]; and Berdai [1991]. While not estimating effective tax rates on investment, Sewell [1995] has estimated the total value of subsidies and tax expenditures for housing, which is the sector of the economy receiving the most valuable tax incentives after agriculture.

Two reasons are evident for these repeated efforts at measurement. First, there have been changes over time in the principal factors affecting the burden of taxes on investment such as statutory tax rates, incentives and rates of inflation. Second, different estimation techniques have been used according to the goals of past enquiries. In this respect, a principal goal of the present study is to assess tax rates on foreign as well as domestic investments and, unlike previous enquiries, this requires that

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7 *Ibid.*, pp. 28 and 47.

8 *Ibid.*, pp. 96 and 166.

9 Cited in Thirsk, p. 12 and unfortunately not otherwise available now.

investment be modelled as taking place in a small open economy where foreign and domestic capital markets are linked and multinational firms contemplating investment in Morocco have to take into account the costs of finance in their home countries as well as in Morocco. Much development work has also gone into precise modeling of tax holidays and other tax incentives for our study. These features of our study are not meant to reflect adversely on previous enquiries, however, and the latter have significant findings that can and will be used as appropriate in the present study.

Objectives of Our Estimates

We mean to estimate the influence of important incentives in the investment codes on effective tax rates on investment in Morocco. We do not plan to show the influence of every incentive on effective tax rates in Morocco -- we think that it is not worth pursuing all of the fine distinctions in the investment codes. Furthermore, as we have noted, some incentives, while provided for in legislation, are not applied. We mean to use the calculations of effective tax rates to examine possible reforms in the corporate tax provisions in two of the more important investment codes: the Industry and Tourism Codes. We also plan to calculate effective tax rates according to the origin of the investor (whether domestic or multinational); for large typical investments in the manufacturing and service industries (e.g., a factory or a hotel); by type of asset (e.g., plant and equipment, structures and inventories); and by the method of financing investments (e.g., debt, equity or retained profits).

We also mean to make comparisons of effective tax rates on investment in Morocco and other developing countries in the Mediterranean region that are seeking foreign investment. We are interested in the extent to which the tax system affects flows of direct foreign investment to Morocco, primarily because such investment brings with it technology transfers and management skills critical to growth. Morocco has obtained a relatively stable share of the amount of direct foreign investment flowing to developing countries in recent years, although the annual amount involved until very recently has been less than 1% of its GNP.[10]

We mean to model direct foreign investment as being of French origin, with the tax treatment appropriate to such investment on the part of the French and Moroccan authorities. France and other EEC countries dominate direct foreign investment flows to Morocco, with the former accounting for about 30% and all EEC countries together with Switzerland accounting for 60% of FDI flows in the early 1990's.[11] Much foreign investment from non-EEC countries appears to take place through French subsidiaries.

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[10] See World Bank, *Developing Private Industry in Morocco*, Annex 8, p. 2.

[11] *Ibid.*, Annex 8, p. 3.

II. METHODOLOGY

As stated in our Introduction, a principle objective of this report is to assess the impact that Morocco's corporate and personal income tax systems have on the allocation of private sector investments. In the absence of taxes, firms would direct investments towards those activities that offer the highest rates of return on capital. Suppliers of investment funds would seek to maximize their return on savings. If investment activities are taxed at different rates, however, firms will also redirect resources to minimize tax payments. Thus, taxes alter market decisions about the quantity and type of investments undertaken.

The way to judge how the tax system affects investment is to determine how much tax is paid by a firm on *marginal* or incrementally profitable investments. After all, a firm will invest until the return it receives is equal to its financial cost of capital. Effective tax rates can be viewed conceptually as summary measures that quantify the overall cumulative tax burden that is placed on these marginal investments.

Simply stated, marginal effective tax rates capture the extent to which the tax system causes the before and after tax return to investments to differ. For example, if the rate of return to an investment before tax is 20% and the rate of return after tax is 10%, then we say that the tax "wedge" is 10% and the effective tax rate is 50% of the rate of return before tax.

It should be stressed that as summary measures, effective tax rates capture more than the application of the statutory income tax rate to an investment's taxable profits. As noted in our Introduction, some of the other factors that affect the tax burden placed on investments include deductions for depreciation and inventory costs, tax or cash incentives offered to investments by the government and the economic climate (inflation and interest rates) experienced in the country hosting the investments.

For instance, how one determines taxable income can have a significant impact on an investment's tax burden. Thus, depreciation deductions specified in the tax law that exceed those required by economic depreciation can reduce the present value of taxable income and subsequently the overall tax burden for an investment. Similarly, valuing inventories at their replacement price can increase a firm's deductions during times of rising prices and lower taxable income and its tax burden. Aside from the tax treatment of depreciation and inventories, it is also important to consider the impact of deductions for interest costs and the ability to carry back and carry forward corporate losses so as to reduce corporate tax liability over time.

When a country does not index its tax system for inflation, as Morocco does not except for real estate income, inflation can lead to either higher or lower effective tax rates on investment. It is not always easy to anticipate the net effects of inflation on effective tax rates because offsetting influences are at work. First, some liabilities for taxes increase when the cost basis of assets is not indexed for inflation. For example, taxpayers earning financial income are liable for tax on that part of capital income that is paid simply to maintain the purchasing power or real value of the taxpayer's wealth. Further, depreciation deductions based on the original cost of the asset are inadequate relative to the current cost of replacing old structures and equipment. Similarly, when using First-in-First-out (FIFO)

methods to value inventories, the price of the oldest inventory in stock (or its original cost) is used to value the inventory's cost rather than the inventory's replacement cost.[12] In these examples, inflation results in a higher effective tax rate on investments.

On the other hand, inflation could reduce the effective tax rate imposed on investment. During times of rising prices, a firm deducts nominal interest which includes a payment to lenders to maintain the purchasing power or real value of the principal of debt. Thus, by allowing the nominal interest expense to be deducted from taxable income, the firm is allowed to deduct a portion of the debt's principal. Given that there is already a deduction for investment costs through depreciation, the deduction of the real value of the debt's principal is equivalent to a second deduction for the cost of the investment. This results in lower taxable income and reduces the effective rate of taxation on investment.

Tax incentives can have a significant and sometimes surprising impact on an investment's effective tax rate; this is especially true for tax holidays. For example, it is often thought that the aggregate effective tax rate on investment income must be zero if a tax holiday is in effect. This is only true, however, for capital that is worn out or otherwise becomes useless before the tax holiday period expires. For those assets that continue to exist and generate income after the tax holiday period expires, the rules governing deductions for depreciation can greatly affect the effective tax rate on the asset.

Consider the following example. Suppose a firm qualifies for a five-year tax holiday in which it pays no corporate taxes and purchases an asset that has a life span of longer than five years. Suppose further that the tax depreciation rules for this asset require that it be fully depreciated over a four-year period commencing at the time the asset begins generating income. Thus, the asset is written down to zero value during the holiday period. After the holiday is over, however, the asset still generates income that is taxed but there is no deduction available for depreciation of the asset even though it continues to depreciate in value. Thus, the effective tax rate for the asset will be positive rather than zero. Moreover, unlike the case for investments which do not receive a tax holiday, any nominal interest expenses incurred during the holiday cannot be used to reduce tax paid by the firm (unless losses, for tax purposes, are allowed to be carried forward beyond the holiday period). During periods of rapid inflation, the inability to claim nominal interest deductions during tax holidays reduces an important tax benefit that would otherwise be available to the firm.[13]

For the purposes of this report, several different types of effective tax rates were calculated: specifically, corporate, personal and aggregate marginal effective tax rates. While most of the details and assumptions of the models used to determine these rates are relegated to **Appendix A**, it is important at this stage to highlight some of the more important attributes that distinguish the model used in this study from reports using other methodology to calculate tax burdens.

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[12] Some countries use the Last-in-First-out (LIFO) method for inventory evaluation. This method allows the firm to use the cost of the most recent inventory held in stock for valuation purposes. In times of rising prices, the LIFO method permits the company to deduct inventory costs that approximate the replacement cost of inventory.

[13] Many effective tax rate studies in the past have dealt with tax holidays by either ignoring them or not modelling them adequately. The final form equations used for the estimation of the effective tax rates for firms qualifying for tax holidays are presented in the mathematical appendix. Derivations of the effective tax rates for tax holidays are also presented in Mintz (1990).

First, we model the impact of taxation on investment depending on whether Moroccan firms have access to international capital markets or not. Where there is no such access, it is assumed that the Moroccan firm must borrow from local investors to undertake the investment. Thus, both corporate and personal income tax law in Morocco affects the investment decision of the firm. On the other hand, multinational firms which have access to international markets can borrow funds at internationally-determined market interest rates. For a small open economy like Morocco, this implies that any personal taxes on Moroccan savings have no impact on the international cost of funds. For such a small open economy, the corporate tax provisions affect investment and personal income tax provisions only affect domestic savings. For this reason, we report results that disagreggate effective tax rates for corporate and personal taxes to recognize openness in the Moroccan economy.

The effective corporate tax rate includes not only the corporate income tax but also property taxes, import taxes, capital excise taxes and turnover taxes which apply to the acquisition of assets. The effective corporate taxes are computed by subtracting the rate of return to capital net of corporate tax (the opportunity cost of funds to the economy) from the rate of return on capital gross of tax and dividing this difference by the rate of return on capital gross of tax.

The effective personal tax rate captures the impact of personal taxes on domestic savings.[14] Effective personal tax rates are estimated by subtracting the rate of return on capital net of personal tax from the rate of return on capital gross of personal tax and dividing this difference by the rate of return on capital gross of personal tax.

The total effective tax rate is the combination of the effective corporate and personal tax rates. The total tax rate is computed by dividing the difference between the gross-of-tax rate and the net-of-personal tax rate of return on capital by the rate of return gross of tax. Note, however, that it is not possible to add the corporate and personal effective tax rates to obtain the aggregate effective tax rate because of the different denominator used to estimate the personal and corporate tax rates.[15]

To provide a further illustration of the concept of effective tax rates, we present the following intuitive explanation. The closed economy determination of effective tax rates is examined in **Figure 2**. Before explaining the diagrams, it will be useful to define various variables. Let rg and rn represent the gross-of-tax and net-of-tax rate of return on capital. The term r captures the cost of finance to firms.

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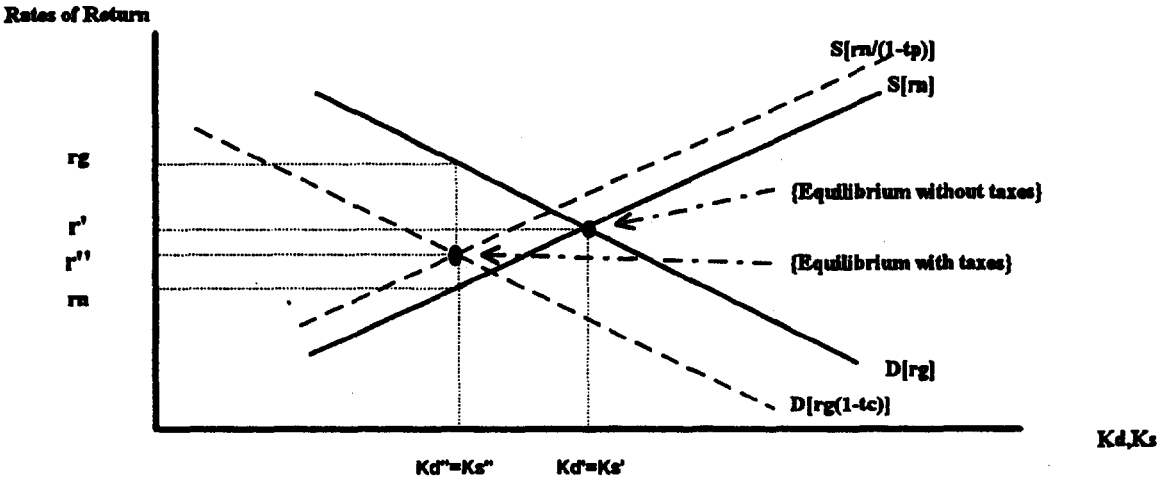
[14] The effective personal tax rate is assumed to be uniform across assets within an industry. However, this tax will vary across industries as different industries typically have different debt-asset ratios.

[15] A more detailed description of the disaggregation of the marginal effective tax rates is presented in Boadway, Bruce and Mintz (1984).

Figure 2

Closed Economy Case
Determination of Effective Tax Rates



Equations and Variable Definitions:

rg(1-tc) =	r	
rn =	r(1-tp)	-> Earning of Savers

r =	Cost of finance of firms
tc =	Effective corporate tax rate
tp =	Effective personal tax rate
S[rn] =	Supply of capital function
D[rg] =	Demand for capital function
Kd =	Demand for Capital
Ks =	Supply of Capital

Results:

The Tax Wedge (total tax on capital) is =	rg-rn = r [tc + tp(1-tc)]
The Marginal Effective Tax Rate is =	(rg-rn)/rg

Let tp and tc be effective personal and corporate tax rates, respectively, and S[rn] and D[rg] be the domestic supply and domestic demand for capital. The domestic demand for capital indicates that firms increase their use of capital with a lower cost of funds (r). Similarly, the domestic supply of capital from households is assumed to increase with a higher rate of return offered by firms to investors. Without taxes, the rate of return on capital settles at the point where the demand for capital is equal to the supply of capital (this is represented at the point where the D[rg] and S[rn] schedules intersect at [Kd'=Ks',r']).

When taxes are introduced, however, both the demand and supply schedules for capital are affected. Corporate taxes lower the returns available to capital as indicated by a shift in the demand schedule towards the origin. Personal taxes also reduce returns available on capital and result in fewer funds being offered by savers as indicated by a shift in the supply curve to the left. With taxes the new equilibrium is at the point [Kd"=Ks",r"]. Notice that taxes result in lower demand for and supply of capital.

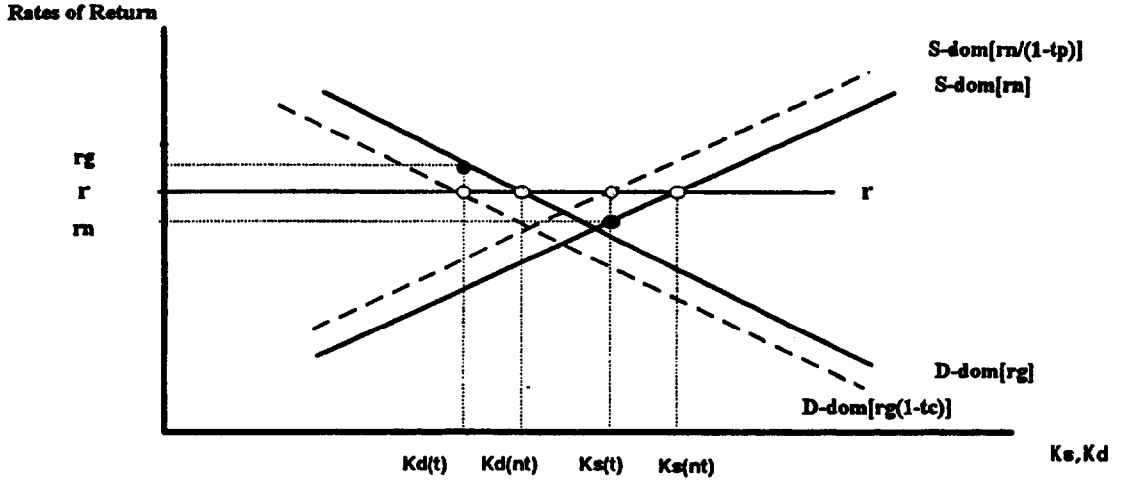
While the closed economy case is in itself illustrative, it is more realistic to assume that most countries, including Morocco, operate as open economies. The determination of effective tax rates for a small open economy is demonstrated in **Figure 3**. The analysis for the open economy case is similar to that of a closed economy with the exception that the host country is a price taker for world interest rates. Thus, the cost of finance for firms (r) is determined at the international interest rate when firms and investors can freely borrow in international markets. From Figure 3, without taxes, a return of 'r' is available to domestic savers who are willing to supply Ks(nt) funds to the market. At a rate 'r', domestic demand for capital by firms would be Kd(nt). The difference between Ks(nt) and Kd(nt) is equal to capital outflows (positive for a capital exporter and negative for a capital importer).

When corporate taxes are introduced, the domestic demand for capital is reduced as indicated by a shift towards the origin. Personal taxes result in a reduction in domestic savings as indicated by a shift to the left of the domestic supply curve. The supply of capital by domestic savers falls to Ks(t) and demand for capital declines to a level of Kd(t). Capital outflows are defined as Ks(t)-Kd(t). The aggregate effective tax rate could again be determined as (rg-rn)/rg, but this would be meaningless. Since the demand for capital is affected by only the corporate income tax and the supply of capital is affected by only personal taxes, then disaggregated effective corporate and personal taxes are relevant in determining how taxes impact on either investment or savings decisions. The personal effective tax rate is expressed as (r-rn)/r and the corporate effective tax rate is (rg-r)/r. The net capital outflows as a result of introducing taxes are the difference between capital outflows after taxes and before taxes.

It should also be noted that all effective tax rates were estimated for two different types of firms; a domestically owned firm and a representative multinational firm having France as its home base. It is assumed that domestic firms finance their capital within the domestic market. For the multinational firm, it is assumed that capital is financed by equity transferred by the parent in France while the debt financing is acquired locally in Morocco or from offshore sources. While it is possible to estimate effective tax rates for all different types of investments, the report will focus on investments destined for manufacturing and service related industries and for the acquisition of machinery, structures, land and inventories.

Figure 3

Open Economy Case
Determination of Effective Tax Rates



Equations and Variable Definitions:

rg =	**Gross of tax return to capital**
rn =	**After tax rate of return to domestic savers**
r =	**Cost of finance for firms - International**
tc =	**Effective corporate tax rate**
tp =	**Effective personal tax rate**
S-dom[rn] =	**Domestic supply of capital function**
D-dom[rg] =	**Domestic demand for capital function**
Kd(t) =	**Demand for capital with taxes**
Kd(nt) =	**Demand for capital without taxes**
Ks(t) =	**Supply of capital with taxes**
Ks(nt) =	**Supply of capital without taxes**
Ks(nt) - Kd(nt) =	**Capital outflows with no taxes**
Ks(t) - Kd(t) =	**Capital outflows with taxes**

Results:

1. Corporate effective tax [tc] =	**(rg - r) / rg**
2. Personal effective tax [tp] =	**(r - rn) / r**
3. Aggregate effective tax [t] =	**(rg - rn) / rn**

4. Saving, due to tax decline from I(nt) to I(t)

5. Net capital outflows depends on the difference between the capital outflows before and after taxes { [Ks(t)-Kd(t)] >(<) [Ks(nt)-Kd(nt)] }

III. A DESCRIPTION OF MOROCCO'S TAX AND INVESTMENT INCENTIVE SYSTEMS

Before analyzing the results of the effective tax rate estimations, a brief description of Morocco's tax and investment incentive systems is required, focusing on the more salient features of the tax system that impact on investment and saving decisions. Furthermore, as Morocco's effective tax rates for multinational firms will be compared to those for investments in Greece and Portugal, this section will also contain a brief summary of relevant features of the corporate tax systems for the latter countries.

Personal Income

Personal income earned by Moroccan individuals is taxed progressively. Since the introduction of the new personal income tax in 1990, its highest marginal tax rate has been reduced in two stages from 52% to 46% in the 1994 Finance Law and the taxable floor for annual income has been successively raised from 12,000DH to 18,000DH in 1994. These are obviously real reductions, being much greater than inflation over the same period. For personal income earned from global sources the highest marginal tax bracket is 36% of taxable income above US$6,000. Dividend and interest income earned by individuals is taxed separately from other personal income. Dividends are taxed at a flat 15% rate and are withheld at the corporate level. The taxation of interest income is slightly more complex. Interest paid to unidentified lenders (e.g., holders of corporate bonds) is subject to a 30% tax which is withheld by the borrower. Where the lender is readily identifiable (as for bank deposits), interest is taxed at a 20% rate which is withheld by the borrower. This withholding tax is then credited against total personal income tax liabilities. If the credit is greater than the total personal tax liability the government does not refund the difference, however.

Corporate Income Taxes

The initial tax rate set for the corporate profits tax in 1986 was 45%. In the period from 1990 to 1994, this statutory corporate tax rate was reduced in 3 separate annual Finance Laws to 36%. The national solidarity tax -- originally imposed to finance the conflict in the Western Sahara -- adds a 10% surcharge to this rate. In effect, the cumulative corporate income tax rate applicable to corporate profits is, therefore, 39.6%. For comparative purposes, it should be noted that Portugal taxes profits at a 39.6% rate and Greece's tax rate is 35% on corporations.

Minimum Tax

Aside from the corporate income tax rate applied to corporate profits, Morocco levies a 0.5% turnover (gross revenue) tax which operates as a minimum tax creditable against the corporate

income tax.[16] In our simulations below, we do not include the impact of the minimum tax on investment. The latter would require an analysis of company investment in the presence of tax losses.[17]

Property Tax

Municipal taxes on the rental value of business plant and equipment are levied at a minimum rate of 30% for firms located on the periphery of urban areas and a 35% rate for firms located in urban areas. From a practical perspective, this tax results in an effective tax rate of 1% on the value of capital held by the firm.[18] In similar fashion to Morocco, Portugal also levies a 1% property tax on assets. Greece has property taxes but they are at most estimated to be 0.04% of asset values.

Import Taxes

In addition to the import duties that apply to imported capital goods or producer equipment, Morocco imposed a special import tax until comparatively recently: the Prélèvement Fiscal à L'importation (PFI). For 1993, the PFI was levied at a rate of 12.5%. The 1994 Finance Law reduced this tax to 10.0% for imported capital goods and the 1995 Finance Law abolished it. Greece and Portugal do not levy taxes on imported capital goods.

Inventories

Morocco permits firms to value inventory costs according to the First-In-First-Out (FIFO) principle. Greece and Portugal, on the other hand, allow firms to use Last-In-First-Out (LIFO) methods to value inventories.

Dividends

Dividends distributed to both residents and non-residents are taxed at a 10.0% rate in Morocco. Greece does not apply a withholding tax on dividends while Portugal applies a 20% withholding tax on dividends remitted to non-residents.

Capital Gains

Capital gains realized on the disposal of fixed assets are taxed at a 25% rate in Morocco. However, if assets are held for a period of four to eight years net taxable profits are reduced by 25% and if the asset is held for more than eight years taxable net profits are reduced by 50%. There are methods

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16 In 1994 a lower rate of 0.25% was introduced for businesses engaged in production and distribution of principal staples (sugar, flour, etc.,) and energy and utilities (water, electricity, hydrocarbon fuels).

17 Minimum taxes are analyzed by Chen and Mintz [1993].

18 See World Bank, *Developing Private Industry in Morocco*, Annex 10, p.7.

that may be used to avoid capital gains taxes on shares altogether, however.[19] For this reason, we assume no capital gains tax is applied. Greece levies a 20% capital gains tax on realizations while Portugal effectively does not tax capital gains.

Depreciation

Prior to the 1994 Budget, Morocco required firms to take annual depreciation deductions for assets using straightline methods. For machinery and structures, rates varied substantially. We estimated that the average straight-line rate was 25% for machinery used by service firms and 10% for firms in manufacturing. For structures, the straight-line rates were 4% for services and 5% for manufacturing. The 1994 Budget introduced new declining balance depreciation schedules. It should be noted, however, that corporations do have the option of continuing to use the pre-1994 Budget straight line rates. As we shall see, this option may be advantageous to the corporation which can take advantage of tax holidays. The new declining balance rates of deductions are calculated by multiplying the annual straight-line rate applicable to an asset by a pre-determined coefficient. Thus, for assets that have a 2 to 3-year life span the declining balance depreciation rate is determined by multiplying the old straight-line rate by a coefficient of 1.5. For assets with 5 to 6-year life spans the coefficient changes to 2 and for assets with a life span longer than 6 years the coefficient is 3.

It appears that a significant increase in the generosity of depreciation schedules, particularly for long-lived investments, took place as a result of these changes in the 1994 Finance Law. Moroccan depreciation schedules can be compared to those of Portugal, which allows rates of 17% and 4% for service machinery and structure investments respectively and 14% and 4% for similar investments in manufacturing. In Greece, machinery investments are allowed to be written off at a rate of 15% and structures at a rate of 8% and 5% in services and manufacturing respectively (straight-line rates).

Investment Incentives

We plan to simulate effective tax rates on two types of investment -- for a new manufacturing business and in a new first-class hotel (services). The effective tax rates for these manufacturing and service industry investments will then be compared with effective tax rates on similar investments in Greece and Portugal. Both types of investment in Morocco benefit from separate incentives given under the Industry Code and the Tourism Code.

Assumptions in Modelling the Investment Codes

Before modelling the effects of the incentives in the investment codes on effective tax rates on investment, we made some preliminary enquiries to check on the application of these incentives.

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[19] This includes "earnings-stripping" whereby firms buy back shares from investors who pay capital gains for tax purposes at a preferential or zero rate. It is also noted in World Bank, *Developing Private Industry in Morocco*, Annex 10, p. 5, that "there is no tax obligation on earnings distributed as additional shares (reportedly about 75 percent of total dividends in Morocco) (presumably, even when these stock dividends are eventually realized), or on capital gains on shares when realized by individuals".

Our primary finding was that incentives involving immediate expenditures have not been used in recent years because of budgetary stringency, thus leaving the tax incentives as the principal operational incentives in the codes. Berdai reports, for instance, that cash incentives to small businesses (e.g., to purchase land) have been dropped for these reasons.[20] When reimbursement of the PFI was available to exporters, moreover, businesses told the international financial institutions that the costs of red-tape and compliance meant that they sometimes did not bother to apply for reimbursement. Moroccan civil servants often sum up these factors by stating that the tax incentives are the only "automatic" incentives offered in the investment codes.

There are other practical difficulties with the investment codes. First, some of the incentive legislation can not be implemented because it is not able to deal with changes in the legal status of firms such as mergers, takeovers, sale or dissolution; projects which fall under several codes; changes in the location of a firm or its plants (which are important because of the regional incentives built into some of the codes); and difficulties in enforcing other distinctions in the codes, such as that between creation and extension of firms. In these and other respects, legislators and those drafting the legislation apparently did not anticipate the full complexity of what they were trying to do and the problems that would arise in implementing the legislation.

We also decided to ignore regional incentives which take the form of relief from customs duties and VAT on inputs, the patente (a kind of business license) and a variety of stamp and registration duties which are available to firms locating outside Casablanca. We acknowledged the importance of these levies in discussing the composition of Moroccan taxes in Figure 1. Lacking data on the composition of inputs, however, it was difficult to measure the effect on costs of levies such as the VAT and import duties. We ignored other incentives -- such as subsidized loans to second-class hotels for other practical reasons. [21]

In summary, we decided to limit our calculations principally to those incentives working through the corporate profits tax, such as tax holidays, investment reserve provisions, accelerated depreciation and the like. We did include property taxes, however, for which we had estimates of burden related to corporate taxes paid. We can also illustrate the importance of relief from the special duty on imported inputs -- the PFI -- when it was available to exporters.

We also decided to model incentives under the industrial and tourism investment codes for the creation of new plants (and not extension of enterprises) by large (rather than small) firms and

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[20] Berdai, p.166.

[21] The Tourism Code provides for tourist hotels other than 5 star hotels to get an interest free loan for 15% of their investment (not including land) in Zones I to III (of the Industry Code) for a time period of 10 years with repayment of the loan starting in the 6th year. In Zone IV, the Tourist Code provides for an interest free loan of 20% of the total investment (again not including land) for a period of 12 years with repayment of the loan starting in the 9th year. We decided to ignore these rather complex incentives, for the following reasons. First, our analysis is concerned with both foreign and domestic investments, and foreign investments in hotels are likely to be in the 5 star category. Second, there has been a tendency not to put into practice incentives which involve outlays and we were not certain whether this incentive has been uniformly provided to investors.

in first class facilities (in the case of hotels). We think that these assumptions approximate those faced by the typical foreign investor and the modelling of the investment decisions by such investors is an important objective of our analysis.

Manufacturing. For the purpose of the Industry Code, the country is divided into four zones. Zone 1 consists of the prefecture of Casablanca-Anfa, and Zone II the other prefectures comprising the Wilaya (Governorship) of Casablanca. Zone III consists of the Prefecture of Rabat-Salé and the Provinces of Agadir, Fès, Kénitra, Marrakech, Meknès, Safi, Tanger and Tétouan. Zone IV consists of the other provinces of Morocco. The objective underlying this regional differentiation is to promote regional balance by encouraging investments outside Morocco's commercial hub in Casablanca.

Investments in Zones I and II, the Wilaya of Casablanca, do not qualify for incentives modelled in our analysis and these zones will be combined for purposes of exposition.

Investments in industry in Zone III qualify for exemptions from property and corporate income taxes for a period of 5 years and firms in Zone III can also put aside tax free investment reserves. Up to 20% of a firm's retained earnings are exempt from taxes if reinvested in the firm's assets. A further qualification is that a firm can only use these funds to finance a maximum of 30% of the assets it acquires.

Besides the above incentives, a manufacturing firm investing in Zone IV also qualifies for an additional 5 years tax relief after the 5 year tax holiday expires. In the second five-year period, firms have the option of either paying a reduced corporate income tax rate of 50% or depreciating investments in plant and equipment at twice the normal rates.

Services. Our service industry investment in a first-class hotel would qualify for slightly different incentives. Two zones are accorded different incentives in the Tourism Code, the first corresponding to Zones I-III in the Industry Code and the second to Zone IV in the Industry Code. To simplify the exposition in our analysis, we will discuss all regional incentives using the classification in the Industry Code.

Investments in first-class hotels in Zones I-III of the Industry Code obtain a 50% exemption from corporate income tax for 5 years. Similar investments in first-class hotels in Zone IV of the Industry Code obtain a 100% corporate income tax holiday for 5 years and a further exemption of 50% of corporate income tax payable for the following 5 years.

IV. SIMULATIONS OF EFFECTIVE TAX RATES

Case 1: No Incentives

We shall begin our exposition of effective tax rates on investment in Morocco by examining simulations for investments which do not benefit from incentives under the investment codes. A new manufacturing firm in Casablanca would be in this position, for example, as would a hotel that was not considered to be in the "five-star" category.[22] **Table 1** summarizes the corporate, personal and aggregate effective tax rates for firms making such investments that are domestically owned and **Table 2** the effective corporate tax rates for multinational firms.

Manufacturing vs Services. Table 1 indicates that the effective corporate tax rate for investments in services is 19.9%, which is just under 20% lower than the 24.2% effective tax rate for investments in the manufacturing sector. Two factors help explain this result. The first arises from the deductibility of nominal interest from taxable income. Firms that are more highly leveraged (i.e., have higher debt to asset ratios) are able to shelter income from taxation with a larger deduction for nominal interest expense. Typically, service companies tend to be more highly leveraged than manufacturing companies so that service companies tend to be taxed at a lower effective rate (see **Table A1** for a summary of the debt to asset ratios).

Second, manufacturing and service sector firms employ different proportions of each of the four capital stocks used for analysis in this study. Most importantly, manufacturing firms tend to use more inventories compared to service firms such as hotels. As discussed in Section II, the use of FIFO accounting when prices rise results in inventories being highly taxed. As a result, industries that require more use of inventories have higher effective tax rates. **Table A2** in the Appendix summarizes the capital stock weights for each industry. From Table 1, it is evident that the effective tax rates for investments in inventories are higher than those for other assets. Consequently, the effective tax rates for investments in hotels are lower than for those in manufacturing enterprises partly because of the composition of the capital stock in each industry.

Table 2 indicates that the relative ranking of effective corporate tax rates for investments in manufacturing and service industries by multinational firms is the same as that for domestic firms.

Multinational vs Domestic Firms. Comparisons of Tables 1 and 2 also indicate that effective tax rates are lower for multinational firms than for purely domestic firms. The reason is simply that multinational firms have access to lower cost sources of finance than domestic firms. Multinational companies can borrow from world markets where the cost of finance is lowest. In the case of the French companies which are assumed to be the multinational investors in our study, the parent can borrow at lower real interest rates at home and transfer equity funds to the Moroccan subsidiary. The cost of finance for the French parent is lower because it can issue debt where inflation is relatively high and the deductibility of nominal interest costs is most beneficial for tax reasons. The cost of finance for domestic and multinational firms is presented in detail in Appendix A. In addition, by reducing the dividend

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[22] It will be recalled that second class hotels are eligible in theory for loans which are partly interest-free, however.

withholding tax for non-residents from 12.5% to 10%, the 1995 Moroccan Finance Law further lowered effective tax rates by approximately 5% for manufacturing firms and by 8% for the services (hotel) sector.

Table 1
Effective Tax Rates
Domestic Firms
(No Incentives)
(Percentages)

	Manufacturing			Services		
Asset	Corporate a/	Personal b/	Total c/	Corporate	Personal	Total
Machinery	20.4	18.8	38.6	23.9	29.9	35.5
Structures	6.7	18.8	31.3	5.5	29.9	25.9
Inventories	51.2	18.8	60.3	46.6	29.9	55.2
Land	29.6	18.8	47.5	24.8	29.9	38.3
Aggregate	24.2	18.8	42.3	19.9	29.9	34.3

a/ The corporate effective tax rates are defined as the difference between the net of corporate tax return to capital and the gross of tax return to capital divided by the gross of tax return to capital.

b/ The personal effective tax rates are estimated as the difference between the net of corporate tax rate of return to capital and the rate of return to savers (net of all taxes) divided by the net of corporate tax return to capital.

c/ The total effective tax rate is measured as the difference between the return to savers net of all taxes and the gross of all taxes rate of return to capital divided by the gross of tax return to capital.

Table 2
Effective Corporate Tax Rates
Multinational Firms
(No Incentives)
(Percentages)

Asset	Manufacturing	Services
Machinery	9.0	15.8
Structures	4.1	1.8
Inventories	51.6	45.8
Land	29.4	12.6
Aggregate	19.7	13.0

It should also be noted that the 1995 Budget, in addition to lowering the withholding tax on non-residents, also lowered the resident withholding tax on corporate dividends from 12.5% to 10%. This measure did not affect the effective corporate tax rates but it did have a slight impact on the effective personal and total tax rates for domestic firms[23]. The personal effective tax rates were reduced from 20.9% to 18.8% for investments in manufacturing and from 32.5% to 29.9% for investments in hotels. Further, the total effective tax rates dropped from 44.8% to 42.3% for manufacturing and from 39.3% to 34.4% for hotels.

Different Assets. As we have noted, Tables 1 and 2 indicate that investments in inventories face the highest effective tax rates of all assets. This is because firms in Morocco are required to expense inventories according to the FIFO principle which only allows companies to deduct the original rather than replacement cost of the inventory. Our analysis assumes an annual rate of inflation of 5%. Even with recent relatively low rates of inflation of this order, however, firms holding inventories are penalized by not being able to deduct the replacement cost of inventories.

It is also useful to note that the effective corporate tax rate for investments in machinery is higher than for investments in structures. One reason for this result is that the deductibility of interest expense is more valuable for assets with long lives than for assets with short lives. Also, firms which issue more debt have lower costs of financing after taxes and the resulting lower discount rate increases the present value of tax depreciation deductions for buildings relative to machinery.

Supply of Domestic-owned Capital. The effective personal tax rate captures the impact of taxation on savings. From Tables 1 and 2 it is evident that investments in the service sector lead to higher effective personal tax rates than investments in manufacturing firms. This result is directly related to the greater amount of debt used by service firms to finance assets as compared to firms in manufacturing. The interest income derived from such debt is more highly taxed than dividend or capital gain income earned by equity owners. On the other hand, interest is deductible from the corporate tax while dividends are not. Thus, the higher debt-asset ratio for investments in the service sector results in higher effective personal tax rates on capital and lower effective corporate tax rates.

Methods of Financing. Tables 3 to 5 capture the impact of the tax system on effective corporate tax rates when different types of financing are used. It is not surprising to see that if a firm is able to finance investments entirely by debt the effective aggregate tax rate on its investments is lower than when it uses new equity or retained earnings. Since interest expense is deductible from corporate taxable income at a rate of 39.6%, a company is able to reduce total taxes paid at the corporate level by issuing debt rather than equity. On the other hand, a firm which finances its investment only by new equity or retentions is not able to benefit from any deductions for the cost of its finance and as a result has higher effective tax rates compared to 100% debt-financed ventures.

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[23] The reduction of the taxation on dividends remitted by corporations to individuals does not impact on the effective corporate tax rates for domestic firms as the tax on dividends applies to distributions after corporate income tax. For multinational firms, the dividend withholding tax as applied to non-residents does impact on the cost of financing. The parent company first transfers equity to the host country and is then subject to the dividend withholding tax as after corporate income tax profits flow back to the home country. For further details on the technical composition of cost of financing and effective tax rates the reader should refer to Appendix A.

We should note, however, that the one-year incentive to encourage increases in equity adopted in the 1995 Finance Law lowers effective corporate tax rates on equity financed investments substantially. Whereas effective corporate tax rates for domestic investment in manufacturing and services in 1995 as recorded in Table 1 are 24.2% and 19.9%, we will show below that without the incentive for equity in the 1995 Finance Law the rates would have been 35.6% and 35.1% respectively (see Table 10).

Table 3
Effective Corporate Tax Rates
(No Incentives)
Domestic Firms: 100% Debt Financing

Asset	Manufacturing	Services
Machinery	-96.6	-74.7
Structures	-111.9	-74.0
Inventories	-10.5	-10.5
Land	-132.3	-132.3
Aggregate	-92.7	-74.9

Table 4
Effective Corporate Tax Rates
(No Incentives)
Domestic Firms: 100% New Equity Financing

Asset	Manufacturing	Services
Machinery	41.7	46.2
Structures	29.9	29.8
Inventories	63.8	67.1
Land	50.9	50.9
Aggregate	44.8	43.6

Table 5
Effective Corporate Tax Rates
(No Incentives)
Domestic Firms: 100% Financing Through Retained Earnings

Asset	Manufacturing	Services
Machinery	37.8	42.2
Structures	28.4	28.9
Land	48.6	48.6
Aggregate	41.6	40.6

Negative Effective Tax Rate. One interesting result that requires closer examination is the negative effective tax rates reported in Table 3 for investments financed entirely by debt. A negative effective tax rate occurs when the tax and incentive system is sufficiently generous so that the return to an investment after tax becomes greater than the return to the same investment before tax. If permitted, tax losses so generated can be used to reduce taxes paid on inframarginal investments or can be carried forward to reduce taxes payable on future income.

Case 2: Allowing for Incentives in the Investment Codes

Manufacturing

Zone III. Manufacturing firms of the type examined in this study receive no regional incentives if they invest in Zones I and II of the Industry Code, which make up the Wilaya of Casablanca. All manufacturing investments in Zone III of the Industry Code automatically qualify for five-year "holidays" in which they are not liable to pay the corporate and property taxes. The companies are also able to finance up to 30% of their assets with tax-free investment reserves. A maximum of 20% of the firm's reinvested retained earnings can be exempted from taxes by this method, although the latter provision is obviously only important when the firm is paying corporate taxes.

In the first column of **Table 6,** we estimate the effective tax rate for tax holidays available to firms investing in Zone III.[24] It may be surprising to some that the effective tax rate for such investments is far from zero and is, in fact, either 15.7% or 17.9% depending on the origin of the investor. To understand this result, note first that machinery and structures acquired by a firm during the holiday period have economic life spans of more than 5 years and will therefore continue to generate income which is subject to taxation well after the expiration of the holiday. Further, machinery and structures are depreciated at relatively fast rates for tax purposes and depreciation cannot be postponed until after the holiday. As a result, allowable tax depreciation deductions are of smaller value after the

[24] Effective tax rates on investments taken in later years of the holiday increase. See Mintz (1990).

holiday. As well, interest expense deductions during the holiday period have no tax value for the firm. All these factors result in relatively high effective tax rates on investments receiving such tax "holidays."

Table 6
Effective Corporate Tax Rates (%)
Manufacturing: Investments in Regions III and IV

	Region III 5 Year 100% Corporate Tax Holiday		Region IV 5 Year 100% Corporate Tax Holiday followed by 5-Year 50% Corporate Tax Holiday	
Asset	Domestic	Multinational	Domestic	Multinational
Machinery	25.1	22.5	20.1	21.2
Structures	23.2	20.7	14.2	10.0
Inventories	0.0	0.0	0.0	0.0
Land	0.0	0.0	0.0	0.0
Aggregate	17.9	15.7	13.7	10.5

Manufacturing investments in Zone IV of the Industry Code not only qualify for those incentives given to investments in Zone III but also for additional incentives which apply in a second 5 year period immediately following the first 5-year holiday. In the second 5 year period, the firm can either choose to have corporate taxes otherwise payable reduced by 50% or can claim double the normal value of depreciation deductions. Table 6 indicates the effect of reducing corporate taxes payable by 50% in the second 5-year period. From Table 6, it can be seen that the addition of the second but more limited tax holiday reduces the effective tax rate from 15.7% to 10.5% for multinational firms and from 17.9% to 13.7% for domestic firms.

To evaluate the importance of the accelerated depreciation option available to manufacturing firms investing in Zone IV, one has to examine the effective tax rate on investments after the end of the first five years of the holiday. **Table 7** compares tax burdens on investments made in year 6 for a firm facing the option of taking a 50% reduction in income tax owed for 5 years or the alternative deduction of twice the normal rate of depreciation. The tax burden for a manufacturing firm faced with this choice is seen to be significantly lower for the latter option. Under the circumstances postulated, the effective tax rate for an investment if a multinational firm takes advantage of the extended tax holiday is 16.1%, which is significantly higher than the effective tax rate of 9.5% which applies if the accelerated depreciation option is chosen. Effective tax rates for domestic firms investing in Zone IV are 18.6% with the extended holiday and 15.4% if the accelerated depreciation option is chosen.

We therefore conclude that the manufacturing firm contemplating operations in Zone IV is unlikely to prefer a second 5-year tax holiday for 50% of corporate tax liability to the accelerated depreciation option, whatever the time profile of its investment. The alternative of the additional tax holiday would appear to be a redundant option.

Table 7
Effective Corporate Tax Rates (%)
Manufacturing: Zone IV
10-Year Tax Incentive
Comparison of Investments made in Year 6

	50% Reduction in Corporate Income Tax (for years 6 - 10)		Twice Normal Depreciation	
Asset	Domestic	Multinational	Domestic	Multinational
Machinery	10.3	8.5	-29.3	-20.1
Structures	9.8	6.0	-10.4	-13.8
Inventories	35.5	30.3	51.2	51.6
Land	7.2	4.0	29.6	29.4
Aggregate	18.6	16.1	15.4	9.5

Services

Our example of a service industry investment -- in new first-class hotels -- would receive incentives under the Tourism Code that differ from those granted under the Industry Code. As noted above, manufacturing firms receive no incentives if they locate in the Wilaya of Casablanca. First-class hotels, on the other hand, are entitled to a 5-year tax holiday where corporate taxes payable are reduced by 50% if they locate in Casablanca or in any other area corresponding to Zones I to III of the Industry Code. New hotels built in the equivalent of Zone IV of the Industry Code are entitled to benefits equivalent to those under one option available to manufacturing firms. That is, they receive a 5-year holiday from all corporate tax liability and a further 5 year holiday where corporate tax liability is reduced by 50%.

Table 8 outlines effective tax rates for investments which qualify for the two regional incentives. As can be seen from Table 8, the availability of the least generous regional incentive leads to aggregate effective tax rates on investment of 15.2% for domestic firms and 12.8% for multinational firms. Incentives available to good hotels built in the equivalent of Zone IV of the Industry Code are even more generous and reduce the effective tax rate to 14.0% for domestic firms and 11.2% for multinational firms.

Table 8
Effective Corporate Tax Rates (%)
Services

	5 Year 50% Corporate Tax holiday		5 Year 100% Corporate Tax holiday followed by 5-year 50% Corporate Tax holiday	
Asset	Domestic	Multinational	Domestic	Multinational
Machinery	8.6	7.3	20.3	16.4
Structures	1.4	-9.8	15.2	15.8
Inventories	35.1	36.2	0.0	0.0
Land	8.3	6.6	0.0	0.0
Aggregate	15.2	12.8	14.0	11.2

We note that the tax holidays received by hotels in Zone IV are identical to those available to manufacturing investments. What is not available to investments in hotels in Zone IV but is available to investments in manufacturing is the option of choosing to double depreciation on assets rather than accept a second 5-year holiday period. Table 8 showed that the accelerated depreciation option was advantageous to manufacturing firms.

Table 9, which brings together aggregate effective tax rates on investments that do and do not receive incentives under the Investment Codes, summarizes some of the more interesting findings of this paper. Comparing aggregate effective corporate tax rates in manufacturing, the rates in the regions that receive no incentives are 23-25% above those in Zone III where investments receive a 5-year tax holiday, and are 83-88% above those in Zone IV where investments receive a full tax holiday for 5 years and a half-holiday for an additional 5 years.

Table 9
Aggregate Effective Corporate Tax Rates, 1995 (%)

	No Incentives		5 Year 100% Corporate Tax Holiday (Manufacturing)		5 Year 50% Corporate Tax Holiday (Services)		5 Year 100% Corporate Tax Holiday followed by 5 Year 50% Corporate Tax Holiday	
				FIRMS				
	Domestic	Multi-national	Domestic	Multi-national	Domestic	Multi-national	Domestic	Multi-national
Manufacturing	24.2	19.7	17.9	15.7			13.2	10.5
Services	19.9	13.0			15.2	12.8	14.0	11.2

Turning to the service industries, the effective tax rates across the different regions are very similar with only a small reduction occurring for firms qualifying for tax holidays. Several factors account for these results. The first factor consists of the introduction of the new and optional declining balance depreciation schedules in the 1994 Finance Law. The declining balance depreciation allowances are more generous than the previous straight line depreciation rates, and this contributes to lower non-incentive effective tax rates for hotels. Second, hotels have higher debt-equity ratios (that is, use more debt in their capital structure) than manufacturing firms and in the presence of inflation this acts to shield taxable income and further reduce the effective tax rates for those firms not qualifying for incentives. These two factors lower effective tax rates only for those firms not qualifying for tax holidays. In addition, and as discussed earlier, hotels use relatively less inventories and make more intensive use of land and structures as compared to manufacturing firms. This is an additional factor explaining why hotels do not receive as much benefit from tax holidays as manufacturing firms, since the largest benefits

from tax holidays accrue to investments in inventories. For example, the effective tax rate on inventories for investments without incentives in hotels by multinational firms is 45.8% (Table 2) and for comparable investments by firms benefiting from 100% tax holidays the effective tax rate on inventories drops to 0% (Table 8).

It should also be noted that for both manufacturing and service industry firms qualifying for tax holidays, the fact that the choice of depreciation schedules is optional has a significant impact on the effective tax rates. In fact, it pays firms qualifying for tax holidays to use the pre-1994 Finance Law straight line depreciation rates rather than the new declining balance schedules, since the former permit more depreciation after the holiday period than the latter. Use of the straightline schedules therefore leaves firms with more income to be sheltered in the period of the holiday and less income subject to tax after the holiday period. As an example, for multinational manufacturing firms benefiting from the ten year tax holidays in Zone IV, the effective tax rates are 17.0% when using the post 1995 declining balance depreciation rates and fall to 12.8% when using the straight line rates[25]. It also pays for investors in hotels receiving ten year tax holidays to opt for use of the straightline depreciation schedules although the relative gain is less than for manufacturing investments. Thus, for hotel investments receiving ten year holidays the effective tax rate with the declining balance depreciation schedules is 14.3% and with the straight line rates the effective tax rate falls to 12.1%.[26]

Sources of Change in Effective Domestic Corporate Tax Rates in Recent Years

Table 10 analyzes the sources of change in effective corporate tax rates for domestic firms in recent years and adds to the explanation of the reduction in the advantages of the regional incentive provisions. It can be seen that the dramatic reductions in effective corporate tax rates since the profits tax was introduced in 1986 have come about principally as a result of the last two annual Finance Laws in 1994 and 1995. Reductions in effective corporate rates before 1994 came about as a result of reductions in nominal corporate tax rates.

It is also shown in Table 10 that reductions in nominal tax rates have only contributed slightly to the dramatic reductions in aggregate effective tax rates over time. The principal source of reduction in effective tax rates has been the reduction and then elimination in 1994 and 1995 of the special import duty, the PFI, on imported plant and equipment. The next largest source of the reductions in effective tax rates has been the introduction of accelerated declining balance depreciation in 1994. The incentive to increase equity introduced in the 1995 Finance Law is also important, but only applies for 1995.

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[25] The reader may notice that the effective tax rate for investment by foreign manufacturing firms operating in Zone IV is shown to be 10.5% in Table 6, and not 12.8% as reported in the present simulation of the new depreciation option made possible by the 1994 Finance Law. The 10.5% effective tax rate is obtained by taking into account an additional change in the following year's 1995 Finance Law which reduced the withholding tax on dividends to 10% from 12.5%.

[26] For the reasons cited in the previous footnote, the effective tax rate for foreign investment in services in Zone IV resulting from the use of straight line depreciation schedules is slightly higher than the rate of 11.2% reported in Table 8.

Table 10
Historical Summary of Changes to
Effective Corporate Tax Rates
Domestic Firms (%)

	Manufacturing	Services
1. 1986 Finance Law	50.3	44.2
2. 1993 Finance Law	47.8	43.9
3. 1994 Finance Law		
a) Reduction of Corporate Profit Tax Rate from 38% to 36%	47.3	43.7
b) Lowering of PFI from 12.5% to 10% on imported inputs	45.7	43.0
c) Accelerated Depreciation Schedules	43.6	41.7
d) Impact of all changes	40.9	40.8
4. 1995 Finance Law		
a) Elimination of PFI on imported goods	29.4	29.0
b) 10% tax credit on the percent of equity used to finance investments	35.6	35.1
c) Impact of all changes	24.2	19.9

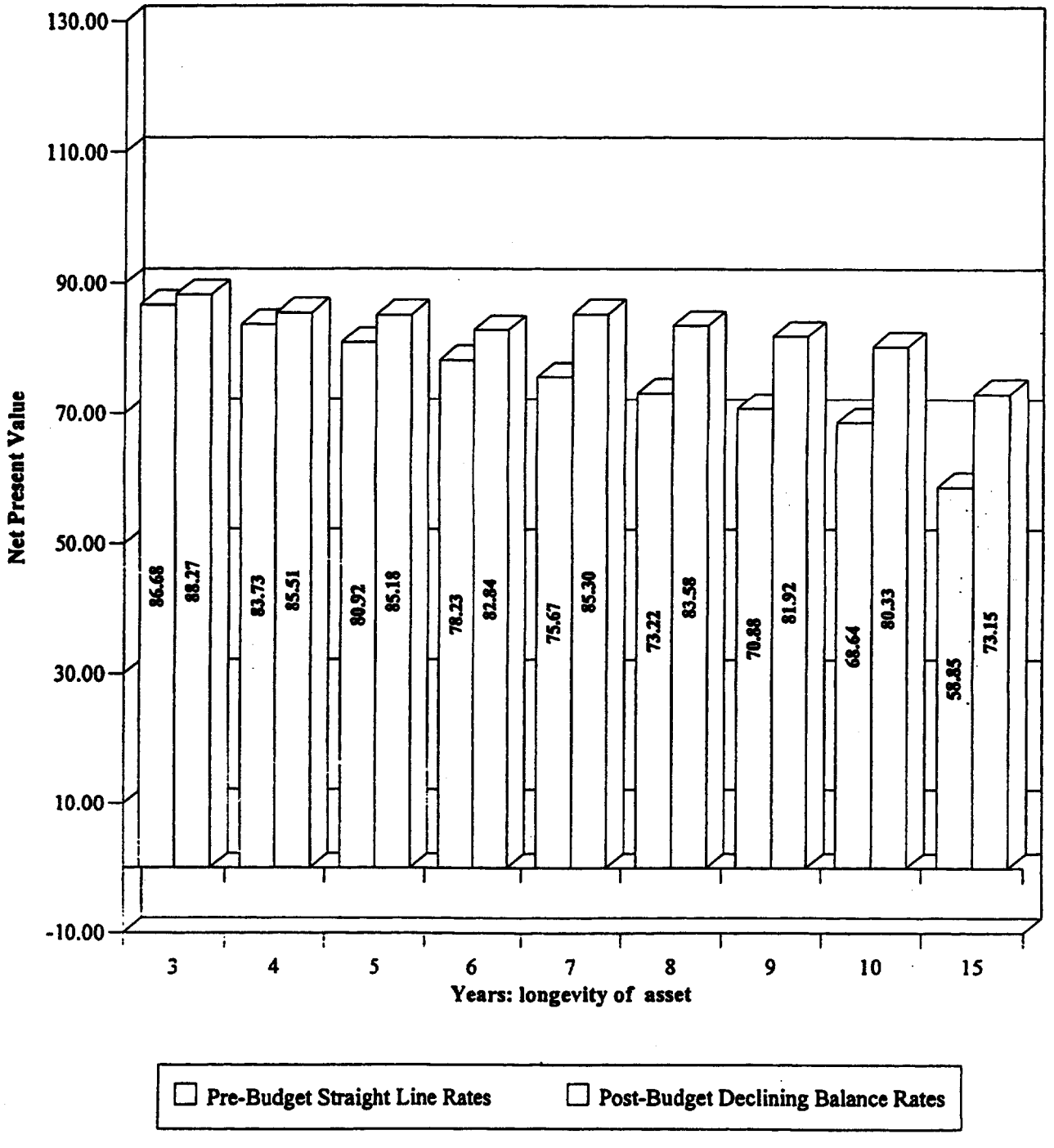
We shall analyze more closely the impact of the latter three changes. First, the PFI was an important element in the protection of domestic producers, although exporters were supposed to be relieved of its burden by rebates. The elimination of this tax is consistent with current and planned exchange market and trade liberalization in Morocco.

The change from straight line to declining balance depreciation rates in the 1994 Finance Law also warrants further attention because of its substantial impact on effective tax rates. From **Figure 4,** it is evident not only that the new declining balance depreciation deduction is more generous than the previous straight line system for all assets, but also that the new declining balance system favors investments in longer lived assets compared to the straight line depreciation system in place before the 1994 Finance Law. Further details of our calculations of the effects of this change in depreciation systems are provided in **Appendix B**.

Finally, the 10% tax credit permitted on the percent of equity used by firms to finance investments (part of the 1995 Finance Law) was intended to stimulate the use of additional equity in the corporate finance decision of firms and to deal with concerns about the undercapitalization of Moroccan enterprises. Like many other corporate tax systems, Morocco's tax system distorts the financing of investments towards more use of debt in the case of fully taxpaying companies. The incentive introduced in the 1995 Finance Law cuts the effective tax rate on investments financed by equity by as much as 30%. As noted, however, this incentive to equity finance is only scheduled to be in effect for one year.

Figure 4

Net Present Value of Pre and Post 1994 Budget Depreciation Deductions



Note: Net Present Value of depreciation deductions are computed for assets with a value of $100.

International Comparisons

It is possible to make comparisons of effective tax rates on investment in Morocco with those of other developing countries in the Mediterranean region. Calculations of effective tax rates for investments in Greece and Portugal are reproduced in **Tables 11-13**. Examining the results in these tables with those in Table 9, it can be seen that effective tax rates for manufacturing and service investments in Portugal are comparable to or even above those in Morocco. Effective tax rates for investments in Greece appear to be lower than those in Morocco and Portugal, particularly when firms can take advantage of the accelerated depreciation regime in Greece.

Table 11
Effective Corporate Tax Rates
Greece (No Incentives)
(Percentages)

Asset	Manufacturing	Services
Machinery	31.3	2.3
Structures	3.1	-4.5
Inventories	-64.3	-88.3
Land	15.5	-19.5
Aggregate	12.5	-8.4

Table 12
Effective Corporate Tax Rates
Greece (Accelerated Depreciation a/)
(Percentages)

Asset	Manufacturing	Services
Machinery	13.9	-37.4
Structures	-16.2	-36.4
Inventories	-64.3	-88.3
Land	15.5	-19.5
Aggregate	-0.7	-39.5

a/ For extra shifts firms are allowed to increase depreciation deduction for fixed assets. Depreciation deductions were accelerated by 70% for the effective tax rate estimates.

Table 13
Effective Corporate Tax Rates
Portugal
(Percentages)

Asset	Manufacturing	Services
Machinery	28.4	26.9
Structures	21.6	12.1
Inventories	-0.7	-41.9
Land	21.8	-1.6
Aggregate	22.0	15.0

It is quite important to observe that Morocco's tax system is "competitive" with that of Portugal and produces slightly higher effective tax rates than in Greece since the tax systems are quite different. Portugal and Greece do not have tax holidays. In the case of Greece, however, tax writeoffs for depreciation of capital are extremely generous. The "normal" depreciation rates in Greece are at least twice what would be justified by economic depreciation and investments in Greece can take advantage of even more accelerated depreciation incentives. Also, there is no withholding tax on dividends remitted to non-residents from Greece. As for Portugal, tax depreciation deductions, especially for machinery, are also generous.

In addition, both Portugal and Greece allow inventories to be valued according to LIFO principles. This procedure allows the company to use the price of the newest stock put in inventory as the measure of the cost of using up inventories. In Morocco, firms must use FIFO which implies that the price of the oldest stock must be used to assess the cost of the inventory being sold. In times of rising prices (both Portugal and Greece currently have higher inflation rates than the 5% annual rate assumed for Morocco), LIFO is considerably more generous to the firm than FIFO. This is especially so when inventories are partly financed by debt as the interest expense, unadjusted for inflation, is deductible from corporate tax. Thus, LIFO gives investment in Greece and Portugal a considerable advantage under conditions of even mild inflation.

V. POLICY ISSUES

Reform Proposals

Several proposals are currently being advanced with respect to the future of incentives given under Morocco's Investment Codes and, indeed, with respect to the future of the Codes themselves. There are, for instance, proposals to collapse the various codes into a single instrument or, indeed, into universal tax provisions so that the same treatment is available to all taxpayers under the Common Law. Proposals have also been made to enlarge the scope of particular tax incentives: for instance, to extend to all new investment the current 5-year tax holidays now given only to new investments outside the Wilaya of Casablanca. Some findings in our analysis are obviously of considerable relevance to this debate. We refer, in particular, to the finding that tax holidays lead to virtually no differences in effective tax rates for investments in the service industries, although the tax holidays do provide some incentives for manufacturing investments. We attributed these findings to complex interactions between the holidays and the structure of different types of investment and the fact that some general incentives introduced in recent annual Finance Laws, such as accelerated depreciation, are substitutes for the tax holidays.

Our analysis of effective tax rates on investment in Morocco raises several additional questions about the direction further reform should take, however. Basic questions arise concerning the advisability of some of the goals and instruments used. Another type of question concerns the costs of administering the present complex incentive system and the consequences for accountability and governance.

Problems with Goals

An obvious problem with the present complex system of goals and related incentives is that it runs the risk that some objectives might be inadvertently countermanded, or that there are insufficient instruments to attain the goals. In his examination of the operation of the investment codes in 1986, Berdai asserts that there are many examples of such conflicts in attaining goals.[27] An interesting case in point consists of the tax treatment of small and large business. Like many other countries, Morocco has the objective of aiding small and medium sized enterprises and "startup" firms. According to Berdai, however, cash subsidies for this purpose have not been awarded to abide by budgetary

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[27] According to Berdai:

> "Contrairement à l'intention du législateur et pour raison de structure de l'investissement les dispositions des codes favorisent en fin de compte au démarrage de l'investissement, l'extension par rapport à la création, la grande industrie par rapport à la petite et moyenne industrie et les zones I et II par rapport aux zones III et IV."

Ibid., p. 167.

constraints or because the sums involved were considered excessive.[28] It is understandable that the authorities might have wanted to limit such subsidies to meet the objective of deficit reduction. Unfortunately, however, these subsidies appear to have been introduced originally to offset tax and other incentives such as subsidies for interest costs of loans that provided greater benefits to larger firms.[29] Eliminating the cash subsidies leaves a bias against small business in the incentive system.

We have also noted in the Introduction to this paper that some of the incentive legislation in the Investment Codes can not be implemented because it is not able to deal with changes in the legal status of firms such as mergers, takeovers, sale or dissolution; projects which fall under several codes; changes in the location of a firm or its plants; and difficulties in enforcing distinctions in the codes, such as between creation and extension of firms. In these and other respects, legislators and those drafting the legislation apparently did not anticipate the complexity of what they were trying to do and the resulting problems that would arise in implementing the legislation.

There is, in fact, a good case for reassessing some goals and phasing related incentives out entirely or limiting their life by a sunset clause. This is the case, perhaps, for such tax relief as remains for exports, which will become redundant as planned exchange market liberalization and further tariff reduction reduce the need to compensate for distortions in these areas. Some analyses have found that, until recently, incentives for exporters have constituted the largest aid to any sector after agriculture (See Sewell, 1995, p.2). We note that the recent removal of the PFI, which used to be rebated to exporters, was the most important single factor in lowering effective tax rates over time in our analysis.

Some skepticism has also been expressed about the efficacy of incentives for regional diversification in the investment codes. A common view is that expenditures on infrastructure might be more effective than tax incentives in redistributing economic activity to regions outside Casablanca and its environs. As can be seen from **Table 14**, areas other than Casablanca have attracted an increasing share of industrial activity in recent years, although the cause of this redistribution, which might even include simple congestion or higher costs in the Casablanca area,[30] has yet to be determined. Our analysis has in fact found that regional tax holidays for some investments -- such as those in the service industry -- are relatively ineffective, although this was not the case in the past. What is urgently needed to determine the effects of regional, and indeed other incentives, is a systematic or formal ex-post assessment or evaluation of use of the codes. While the different investment codes do call for data on outcomes of the incentives to be deposited with ministries concerned, no such follow-up has apparently been undertaken.

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[28] As Berdai comments:

> "L'Etat promet l'octroi d'avantages sans être en mesure de les quantifier de les prévoir et d'honorer ses engagements. Si elle peut renoncer au recouvrement de ses droits et taxes elle ne peut pas toujours accorder des primes si la situation financière est mauvaise et surtout lorsquil s'agit d'importantes sommes."

Ibid., p. 166.

[29] *Ibid., p.* 96.

[30] Site costs in Casablanca are reliably reported to be more than three times those in available alternative locations in North Africa and Southern Europe.

Table 14
Share of Casablanca and Environs in Industry

Share of Casablanca - Mohammedia in:	1976	1980	1992
Industrial Investment	67%	58%	42%
Turnover of Industrial Firms	63%	61%	53%
Value Added by Industry	70%	68%	55%
Number of Industrial Establishments	59%	56%	49%
Industrial Employment	59%	58%	50%

Source: Le Ministère du Commerce et de l'Industrie

Problems with Instruments

Another feature of the incentive system in Morocco is the substantial amount of bureaucratic discretion implicit in administration of the various investment codes by line ministries with associated sectoral or industry responsibilities. Some of the biases this leads to might be anticipated: a bias towards tax expenditures being an old and familiar refrain in many other tax systems. Thus, ministry budgets might be expected to limit the size of outlays a ministry can make in the form of cash subsidies permitted by the codes. Indeed, as we have seen, in practice it has been difficult and costly -- and in some cases even impossible -- to get cash subsidies or refunds permitted by law for taxes paid. No comparable budget limit exists for revenues foregone by tax incentives permitted by the codes, however, so we might expect this type of incentive to be granted more freely simply because its opportunity costs in foregone revenues is less visible.

Tax Holidays

Given the extensive use of tax holidays as an incentive instrument in Morocco, it is important for policy makers to understand their benefits and drawbacks and the nature of the firms that most benefit from this incentive.

It should be realized for a start that this incentive encourages the formation of new *firms* as opposed to *investment* in assets. The tax holiday incentive may involve less administrative cost and have the related appeal to firms that it requires less discretionary action by bureaucrats. In addition, as firms pay no corporate income taxes, interest cost deductions are no longer valuable. As a result, tax holiday firms use less debt and this, in turn, reduces bankruptcy risks.

Some of these "advantages" of tax holidays to firms may be less appealing from the point of view of public policy. From the point of view of good governance, for instance, it is the more visible policy instruments whose use should be encouraged.

There are other significant disadvantages of tax holidays. First, since it is mandatory for Moroccan firms to use depreciation deductions during the holiday, these types of tax holidays discriminate against firms investing in long-lived assets. In similar fashion, tax holidays principally benefit short term investments, often termed footloose investments, which can easily be relocated to different jurisdictions.

As noted above, tax holidays benefit new firms. As a consequence, a form of tax avoidance that is said to occur in other countries giving tax holidays is to close a firm once its tax holiday is exhausted and open a new firm to take renewed advantage of the tax holiday provision. This type of avoidance would be difficult in Morocco, where closure of a firm requires approval by a judicial enquiry. While this might seem to be an extreme form of tax avoidance, it does suggest that the wrong objective -- the creation of new firms -- is being targeted.

More subtle forms of tax avoidance are possible with tax holidays. Where taxpayers have an interest in both tax-holiday and non-holiday companies, the tax base may be eroded as taxpayers arbitrage costs and revenues across the different firms. To minimize the taxpayer's overall tax liability, it may be feasible to shift costs to the non-holiday companies and income to the tax holiday firm. For example, the investor holds debt in the associated non-tax holiday firm rather than in the tax-holiday firm, thus minimizing overall tax paid.

Not only is it possible for different *domestic* firms to arbitrage across tax holiday and non-holiday companies to minimize taxes, it is also conceivable that a similar type of arbitrage can occur across *countries*. With loose regulations, it may be possible for a taxpaying firm in one country to construct a shell company in another country that qualifies for a tax holiday and shift incomes and costs across firms to reduce the taxpaying firm's tax burden.

These are far from being abstract problems of tax avoidance and evasion. Mateus found such arbitraging between tax holiday and other firms was one of the principal means of tax avoidance whereby Moroccan firms reduced tax liabilities by approximately 14% of total revenue in 1986.[31]

It should also be noted that tax holidays do not necessarily help a country attract foreign direct investment. In a recent cross-sectional econometric study by Mintz and Tsiopoulos [1994], tax savings through tax holiday provisions were not found to be statistically significant in determining foreign direct investment in countries located in the Mediterranean basin. A significant statistical relationship was found, however, between foreign direct investment and the non-incentive marginal effective tax rates in these countries. The results of the Mintz and Tsiopoulos estimations are reproduced in **Table 15**.

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[31] Cited in Thirsk, pp. 13-14.

Table 15
Impact of Taxes on Foreign Direct Investment:
14 Countries in the Mediterrranean Region

	Dependent Variable: Foreign Direct Investment as a Percent of GDP	
	No Tax Holidays	With Tax Holidays
Intercept	7.65	4.23
(t-statistic)	(2.74)	(1.59)
Marginal Effective Tax Rate	-.135	-.05
(t-statistic)	(-1.92)	(-.55)
GDP Growth Rate (5 year average)	1.00	.58
(t-statistic)	(3.89)	(1.69)
Adjusted R^2	.57	.13
F-Statistic	9.62	1.94
Number of Observations	14	14

Source: Mintz and Tsiopoulos [1994].

Alternative Incentives to Tax Holidays

Should Morocco wish to continue to provide tax incentives for the development of the private sector, there are alternative and more targeted strategies that might be employed. Two such strategies which we will now proceed to examine are the use of investment tax credits or allowances and reductions in corporate income tax rates.

Investment Tax Credits

These credits (or allowances) permit a firm to reduce its overall tax liability by a percentage of the acquisition cost of an asset. One of their principal merits is that they are specifically targeted to increase investment and if this is what is desired it can be achieved at less revenue cost by use of such credits. Further, they reward firms for the acquisition of capital, rather than simply rewarding the creation of new firms as in the case of tax holidays. On the side of disadvantages, if the credit cannot be carried forward, the incentive benefits existing companies more than "start-up" firms which are usually less profitable.

Base-Broadening Tax Reform

A "neutral" policy environment could be attained by largely eliminating tax and other incentives and using the resulting savings in revenue to lower statutory tax rates. Such base-broadening revenue-neutral tax reform has been adopted in many OECD countries in recent years, and indeed, has been an important part of the strategy that has been followed by the Moroccan Department of Finance. We have also seen, however, that effective tax rates have been reduced in Morocco by means such as introducing accelerated depreciation, which is not neutral as between employment of labor and capital.

A tax system with fewer specific incentives and lower aggregate rates would be another important signal that the government of Morocco plans to forsake the bureaucratic intervention entailed in past micro-management of the economy. It would also ensure that the tax system provides a "level playing field" for the private sector and thereby lets the market determine the success of investments.

Among other benefits, broadening the tax base and lowering statutory income tax rates would also simplify the task of administering the tax system and thereby reduce both administration costs for the government and compliance costs for firms. A broader tax base coupled with lower rates may also increase the probability of compliance by that part of the population that otherwise feels unfairly taxed. Lower tax rates would also help preserve the revenue base since arbitrage and tax planning opportunities would be reduced. Further, a lower corporate income tax rate reduces the benefits firms derive from using debt to finance investments, which in turn lowers bankruptcy risks. Finally, the elimination of a large hidden tax expenditure such as tax holidays would increase transparency in the tax system and therefore the accountability of government.

There is a sense in which a tax system with a narrower base and higher tax rates perpetuates itself, in that it contains incentives to have even more incentives. Indeed, the process is rather like a dog chasing its tail. To introduce an incentive and raise the same amount of revenue, the aggregate or statutory rate of the tax -- or the tax rate on all other activities -- has to be raised. Every worthy cause that is so favored, however, provides an additional incentive for the next worthy cause to seek special treatment. The unfortunate thing is that is not possible for everyone to receive special treatment -- someone has to pay taxes.

The principal drawback to the strategy of base-broadening and lowering statutory tax rates is that this measure rewards not only new investments but also existing activities. Thus, a reduction in corporate tax rates not only benefits new investments but also provides windfall gains to holders of existing assets.

VI. CONCLUSION

This study set out to ascertain the effect of Morocco's tax and incentive systems on the burden of taxation on investment and to compare the resulting estimates of effective tax rates on investment in Morocco with those for other developing countries in the Mediterranean region.

The calculation of the effective tax burden on investment has important implications not only for growth but for governance. The nature of many interventions in the market through the tax system is that they are not transparent and their effects are far from being self-evident. Two methods have been developed to which make some of the "hidden" effects of taxes more visible and both have merits and disadvantages. Tax-expenditure tables involve making value judgements about" ideal" tax systems and it is not easy to obtain agreement on such normative goals.[32] The calculation of effective tax rates on investment, as in the present study, is a method of adding up the effects of tax and other incentives which is, by way of contrast, value-free although it does not provide an estimate of revenue impacts of the tax measures.

The primary interest in these estimates of effective tax rates arises because they carry two important implications for growth. First, in a neutral policy environment, there would be no differences in effective tax rates among different investments, so that the market would get to select and reward the investments which make the best use of economic resources. Second, the question of whether effective tax rates are sufficiently encouraging so as to attract foreign investment is important to growth because foreign investment brings with it technology transfers and management skills critical to growth.

There are, of course, a few well-known instances of market failure which may warrant departure from such a neutral policy environment to increase efficiency. In addition, governments may not accept the implications of neutrality as a policy goal and may choose to alter the potential rewards to investments for social and other reasons. In these circumstances, it is still important to obtain estimates of the resulting differences in effective tax burdens on investments, so that the costs of these interventions in the market can be assessed against their outcomes.

The analysis did indeed reveal substantial differences in the effective tax rates on investments in Morocco of different types of assets, industries, methods of financing and the origins of the investor, i.e., whether domestic or foreign. Even without taking into account incentives in the investment codes, effective tax rates on investment in different types of assets varied from minus 132% to plus 67% depending on the method of financing investments. Further, we found that even mild inflation of the type recently experienced in Morocco (around 5% per annum) substantially penalizes the holding of inventories compared to investments in other types of assets. Other countries have adopted the LIFO method of valuing inventories to remove the latter bias.

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[32] On methodological issues with tax expenditure analysis, see Neil Bruce ed., *Tax Expenditures and Government Policy*, Seventh Roundtable on Economic Policy, John Deutsch Institute, (Kingston, Ontario, Queen's University, 1988). For an actual application of tax expenditure analysis in Morocco, see Sewell (1995).

One of the central findings in the analysis, however, was that there have been dramatic reductions in effective tax rates on investment since tax reform in Morocco commenced with the introduction of the corporate profits tax in 1986. In this period, the effective corporate tax rate for domestic investments has been more than halved, dropping from 50.3% for manufacturing and 44.2% for services in 1986 to 24.2% and 19.9% respectively for these industries in 1995. Most of this reduction has come about recently, because of changes in the Finance Laws for 1994 and 1995. Elimination in 1995 of the special import duty on imports, the PFI, has been the most important change, followed by the introduction of accelerated declining balance depreciation in 1994, and the incentive to increase equity in the 1995 Finance Law.

As far as comparisons with other developing countries in the Mediterranean are concerned, the study contrasted effective tax rates on investment in Morocco with those in Portugal and Greece. We found effective tax rates for investments in Morocco which do not receive incentives in the investment codes to be roughly comparable or even below those for investments in Portugal. Effective tax rates on investment in Greece are generally lower than those in Morocco and Portugal, particularly if firms are able to take advantage of special accelerated depreciation provisions in Greece.

We should reiterate that the estimates of effective tax rates on investment that have been cited do not include the effects of incentives offered in the investment codes. Turning to the effects of these codes, it is not obvious that particular industries *do* obtain incentives from these codes. With eight sectors being selected for encouragement in the codes, it is still true that revenue has to be raised from the tax system. In these circumstances, paradoxically, if everybody gets a tax break nobody may get a tax break!

The provisions for tax holidays are clearly the most important individual incentives in the investment codes, and the analysis focused on establishing their effects. A rather surprising finding was that these 5 and 10 year holidays do not make make a material difference to effective tax rates for investments in the service industries although the holidays do lower effective tax rates for investments in manufacturing. These results reflect complex interactions between the holidays and the structure of different types of investment, as well as the fact that some of the general tax reductions introduced in the Finance Laws of 1994 and 1995, such as accelerated depreciation, are substitutes for the incentives provided by the tax holidays.

We suggested that some of the objectives of the investment codes may have become obsolete or otherwise require reexamination. This is the case, perhaps, for tax relief remaining for exports, as exchange market liberalization and tariff reduction reduce the need to compensate for distortions in these areas. The effectiveness of incentives for 0regional diversification also need to be examined, even if the objective itself is not in question. We suggested that a formal evaluation process might be instituted to examine the effects of these measures, as was called for originally in the investment codes themselves.

We also raised substantial questions as to the merits of tax holidays as an incentive instrument. Tax holidays reward the creation of new *firms* rather than new *investment*, and are susceptible to use in several kinds of tax avoidance schemes. For these reasons, we suggested that the Moroccan authorities might consider replacing tax holidays by simple reductions in statutory corporate tax rates or investment tax credits.

By a combination of extending tax bases to include more taxpayers and improved administration, the Moroccan Ministry of Finance has successfully reduced tax rates while preserving tax revenues in recent years. The replacement of many existing tax and other types of incentives by simple reductions in statutory tax rates is an obvious extension of this strategy. Many OECD countries have reduced tax rates while holding tax revenues constant by eliminating special tax incentives in recent years, and such policy change has almost become synonymous with tax reform to the public in these countries. One of the principal side advantages of such reform to the Moroccan authorities might well be the economies in use of administrative resources that would thereby be made possible. The advantages for governance in terms of the transparency of policy instruments should also be self-evident. Above all, however, the adoption of such a reform would represent a natural progression in recent policy in Morocco towards allowing the market to determine outcomes of investments and away from detailed bureaucratic intervention in the economy. Alternatively, if it is felt that circumstances warrant a general stimulus for investment, a selective investment tax credit which, unlike many present incentives, favors long-lived investment, might be introduced.

In a very real sense, such a re-emphasis on government's function in "levelling the playing field" for private investors and thereby allowing the market to promote efficiency in the allocation of resources would play a key role in Morocco's Private Sector Development Program.

APPENDIX A

A. Calculating the Effective Tax Rates

This appendix provides additional details of the methodology, assumptions, and data sources used to calculate the effective tax rates. The methodology is based on the open economy analysis of Boadway, Bruce, and Mintz (1984, 1987). The work is similar to that of King and Fullerton (1984), Andersson (1991) and the OECD (1991). The main differences in the methodology used here and that of the OECD, for example, is that actual interest rates and inflation rates are used to measure the effective tax rates and the host country is assumed to be a small open economy.

The methodology used to estimate the effective tax rates rests on a number of assumptions. To start, companies are assumed to maximize profits, implying that they invest in capital to the point where the return on capital equals the cost of capital. It is also assumed that companies choose the level of debt and equity needed to minimize their cost of finance. Cost minimization of financing implies that companies issue debt until the tax benefits from additional debt equals the bankruptcy and agency costs associated with incremental debt. In addition, the three host countries of this study, Morocco, Greece and Portugal are treated as small open economies. In a small open economy, corporations have the option of acquiring financing from domestic and international markets while, at the same time, the domestic market interest rate for a country is determined by international trading of currencies. Also, with a small open economy the total effective tax rate is disaggregated to a corporate and personal effective tax rates.

Furthermore, the analysis explicitly deals with those investments of multinational corporations whose home country is the France and also for domestically owned Moroccan firms. Investments in both manufacturing and service related industries are considered. Concerning multinational firms' investments it is assumed that the France is the capital-exporting country, and Morocco, Greece and Portugal are the host or capital-importing countries.

Two specific tax incentive were incorporated into the analysis, export allowances and tax holidays. Greece and Morocco offer tax holidays and only Morocco offers firms export incentives.

The multinational firm is assumed to finance capital in the host country using two sources of money. The first is debt raised in the host country and the second is equity invested by the multinational parent in the subsidiary operating in the host country. The mathematical expression for the cost of finance;

$$rf_{mult} = \frac{\{\beta i'(1-u')+(1-\beta)g'-p'\}(1-\gamma)}{(1-x)} + \gamma\{i(1-u)+p'-1 \qquad \text{(a.1)}$$

The cost of finance for the domestic firm, is expressed as follows;

$$rf_{dom} = \gamma i(1-u) + (1-\gamma)\rho - p \qquad \text{(a.2)}$$

The nominal cost of finance for firms is R = rf + p.

The net of corporate tax return to capital for multinational fimrs is;

$$r_{mult} = \{\beta i'(1-u')+(1-\beta)g'-p'\}(1-\gamma)+\gamma(i-p) \tag{a.3}$$

For domestic firms the net of corporate tax return to capital is;

$$r_{dom} = \gamma i + (1-\gamma)\rho - p \tag{a.4}$$

The net of personal tax return to domestic savers is expressed as;

$$r_n = \gamma i(1-m) + (1-\gamma)\rho(1-\theta) - p \tag{a.5}$$

All home (capital-exporting) country variables are denoted by the ' symbol. The term x is the weighted average host country withholding tax rate. Those characters without the ' symbol represent host (capital-importing) country variables. The term i is the nominal interest rate; u the corporate income tax rate; m the personal tax on interest income; ß is the portion of multinational parent's capital financed by debt in the home country, while γ represents that portion of the multinational subsidiary's investment financed by debt in the host country; g' is the nominal home country cost of equity finance; and p' is the expected rate of inflation of the home country (p is also the inflation rate of the host country). The rate of return on capital held by the owners of the multinational parent, as formulated above, is essentially a weighted average of the rate of return available to owners of debt, γ(i-p) (or γ(i'-p') for firms that borrow from the home country), and owners of equity, [(1-ß)g'+βi'(1-u')-p']. The host country rate of return on capital from holding equity is itself a weighted average of both home country equity, (1-β)g', and the rate of return on corporate bonds in the home country, βi'(1-u'). Similarly, for domestic firms, the net return to savers is also a weighted average of the return available from holding debt and equity as expressed in equation a.2. The term Θ represents the weighted average tax on equity income.

It is assumed that international interest rates are determined in the long run by arbitrage in international markets. Assuming purchasing power parity to hold in the long run to determine the host country's interest rate relative to the home country, the following equation is assumed to hold:

$$i = i' - (p' - p) \tag{a.6}$$

The owner of a multinational parent is assumed to be a typical G-7 country investor. The investor is assumed to face a weighted average of tax rates imposed at the personal level across the G-7 countries. It is important to note that the net-of-personal tax rate of return earned on bonds is assumed

to equal the rate return earned on equity held by the marginal investor in the U.S. parent. This relationship between the rate of return earned by bonds and equity implies the following expression:

$$g' = \frac{i'(1-m')}{(1-\theta')} \tag{a.7}$$

Similarly, for the domestic firm, the return on domestic equity can be expressed as follows;

$$g = \frac{i(1-m)}{(1-\theta)} \tag{a.8}$$

The variable, m', is the personal income tax paid on interest (the rate used was 20 percent). The variable, Θ', is the tax on equity income for the average OECD investor. This tax rate is assumed to be a weighted average of personal tax rates on dividends and capital gains and found to equal 13.6 percent. The equivalent domestic rates used for equation a.5 are summarized in Table A1.

The nominal interest rate is operationally defined as the 1991 lending rate, while the annual change in the consumer price index was used as the inflation rate. Both variables, for all countries were collected from the IMF International Financial Statistics. The rates used for each country are presented in Tables A-1 and A-2.

The data used for the debt-to-total-assets ratio (ß), the debt-to- asset-ratio of the multinational company's investment within the host country (γ), and the economic depreciation rates (δ) were estimated from World Bank project data for all countries. The components of the debt data included debentures and loan stocks, loans from financial institutions, loans and advancements from headquarters and subsidiaries, short-term borrowing, and other creditors. The debt/asset ratio was estimated for each of the three industries. The debt-to-asset and economic depreciation parameters used are summarized in Table A1:

Table A1
Debt-to-Asset and Economic Depreciation Parameters

	Manufacturing	Services
β	29	44
γ	38	50
δ - Bldg	3	4
δ - Mach	14	22

The statutory annual depreciation rates and relevant tax rates, such as the corporate, income, and dividend tax rates, were obtained from the International Bureau of Fiscal Documentation, 1992 edition, and Price Waterhouse International Taxation of Corporate Income. Actual rates used are provided in Tables 17 and A.3.

1. **Rental Cost of Capital & Effective Tax Rate**

For a profit-maximizing company, capital is acquired until the return on capital, gross of taxes, and depreciation equals the rental price of capital. The rental price of capital, for buildings and machinery, is mathematically defined as,

$$F_{Mach/Bldg} = \frac{(\delta + rf_{mult/dom})}{1-u-t_g\frac{(1-u)}{(1-a_L)}}(1-A)(1+t_k) + \frac{t_p(1-u)(1+t_k)}{1-u-t_g\frac{(1-u)}{(1-a_L)}} \qquad \text{(a.9)}$$

where F represents the return per dollar of capital (gross of depreciation and taxes), t_p is the property tax, t_g is the gross assets tax, t_k the import tax, a_L is the proportion of labor used in the production process, r_f is the real interest rate (specified by equations a1 and a2) and δ the economic depreciation rate. The term A is the tax value of the annual depreciation allowances per dollar of capital expenditure:

$$A = u\{a_1 + \frac{a_2}{(a_2+R_{dom/mult})}\} \qquad \text{(a.10)}$$

where a_2 is the annual declining balance (or equivalent) depreciation rate.

The user cost of capital for inventories is defined as:

$$F_{Inv} = \frac{(rf_{mult/dom}+up)(1+t_k)}{1-u-t_g\frac{(1-u)}{(1-a_L)}} \qquad \text{(a.11)}$$

Finally, eliminating physical depreciation and tax depreciation allowances, the user cost of capital for land is expressed as follows:

$$F_{Land} = \frac{rf_{mult/dom}}{1-u-t_g\frac{(1-u)}{(1-a_L)}} + \frac{t_p(1-u)(1+t_k)}{1-u-t_g\frac{(1-u)}{(1-a_L)}} \qquad \text{(a.12)}$$

The aggregate effective tax rate (U), defined as the difference between the risk-adjusted cost of capital, net of economic depreciation, r_g, and the net-of-tax rate of return required to compensate savers for their savings that are to be invested in the company's particular capital, is for the purpose of this study defined as:

$$U_{agg} = \frac{(r_g - r_n)}{r_g} \tag{a.13}$$

The corporate effective tax rate is;

$$U_{corp} = \frac{(r_g - r)}{r_g} \tag{a.14}$$

and the personal effective tax rate is expressed as:

$$U_{pers} = \frac{(r - r_n)}{r} \tag{a.15}$$

where

$$r_g = F - \delta \tag{a.16}$$

As stated previously, the host country economic depreciation rate used, δ, for buildings and machinery was derived from World Bank project data.

2. **Tax Holidays:**

The cost of capital for the firm qualifying for tax holidays can be expressed as follows:

$$F = \frac{\delta + rf_0}{(1-u_0)}(1-A_t) + \frac{(1+rf_0)(A_t - A_{t-1})}{(1-u_0)} \tag{a.17}$$

The term rf_0 is the real cost of finance with the exception that the domestic corporate income tax rate, for interest deductibility reasons, is set to zero. The effective tax rates are calculated as indicated from equation (a.13).

The expression A_t represents the present value of depreciation allowances. The expression for A_t is;

$$A_t = u_0\alpha_1 + Z_t[\, u_0(1-Y_t) + u_1\frac{(1+\theta_1)}{(1+\theta_0)}Y_t\,] \tag{a.18}$$

for $t^*-t>0$.

$$Z_t = \frac{(1 + R_t)\alpha_2}{\alpha_2 + R_t} \tag{a.19}$$

and,

$$Y_t = \left[\frac{(1-\alpha_2)}{(1+R_t-(p'-p))}\right]^{t^*-t} \tag{a.20}$$

For tax holidays that have an additional term where the corporate tax rate is greater than zero but less than the legal statutory rate the present value of depreciation deductions are adjusted as follows:

$$A_t^1 = u_0\alpha_1 + Z_t[\, u_0(1-Y_t^1) + u_1\frac{(1+\theta_1)}{(1+\theta_0)}(Y_t^1-Y_t^2) + u_2Y_t^2\,] \tag{a.21}$$

The term Y_t is similar to that of equation a.20 with the exception that the exponents 1 and 2 represent the duration of the two terms of the tax holiday; 5 and 10 years. The terms u_0 represents the statutory income tax rate for the first term tax holiday period, u_1 is the income tax rate for the second term of the tax holiday and u_2 is the after holiday income tax rate.

2. Aggregation

The aggregation of the effective tax rates for each industry for each country involved the individual weighting of r_g and r_n by the corresponding capital stock weight (csw) for the four assets in each industry.

The aggregation of the effective tax rates for either the manufacturing or service sectors can be more formally expressed as:

$$U_{Aggregate} = \frac{\sum_{j=1}^{4} r_{gj} CSW_j - \sum_{j=1}^{4} r_{nj} CSW_j}{\sum_{j=1}^{4} r_{gj} CSW_j} \qquad \text{(a.22)}$$

where j represents the four capital stocks. The capital stock weights used for the three countries were derived from World Bank project data.

Table A2
Capital Stock Weights

	Manufacturing	Services
Land	4.51	2.86
Buildings	22.54	6.41
Machinery	33.28	6.36
Inventories	23.16	0.89
Total	83.49	16.51

Tables A-1 and A-2 summarize the relevant input data used to calculate the user costs of capital and effective tax rates for all four countries.

Table A3
Summary of Inputs

	Greece	Portugal	Morocco
u-corporate income tax	35%	39.6%	39.6%
tg-gross receipts tax (Mfg)[1]	0%	0%	.5%
tg-gross receipts tax (Serv)[40]	0%	0%	.5%
t-excise tax (capital)	0%	0%	0%
tp-property tax	0.04%	1.0%	1.0%
Inflation	15.9%	10.3%	7.3/5.0%
ITA/C:Bldg-Mfg	0%	0%	0%
ITA/C:Bldg-Serv	0%	0%	0%
ITA/C:Mach-Mfg	0%	0%	0%
ITA/C:Mach-Serv	0%	0%	0%
Annual depreciation / Bldg-Mfg	5% SL	4% SL	15% DB
Annual depreciation / Bldg-Serv	8% SL	4% SL	12% DB
Annual depreciation / Mach-Mfg	15% SL	14% SL	30% DB
Annual depreciation / Mach-Serv	15% SL	17% SL	37.5% DB
Tax on Interest Income	25%	25%	20%
Dividend withholding tax	0%	20%	10%
Tax Holidays	None	None	5 +5 [2]
Capital Gains tax	20%	0%	0%[3]
Inventories	LIFO	LIFO	FIFO

Note: Annual tax depreciation is expressed as straight line rates (SL) for Greece and Portugal but for Morocco is expressed as declining balance rates (DB) as introduced in the 1994 Finance Law. Corresponding economic depreciation rates for structures are 2% and for machinery 7% (calculated on a straight line basis).

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1 This tax effectively acts as a corporate minimum tax.

2 Tax holidays are offered for five years for firms locating in region III and for five years plus an extension for an additional five years at 50% of the corporate income tax rate for firms locating in region IV. In addition, firms qualifying for tax holidays are also exempt from import duties, property tax and excise taxes.

3 For the purpose of the estimation of the effective tax rates it is assumed that firms fully own and occupy their structure for more than eight years. Capital gains realized on the disposal of fixed assets (other than structures) and shares are treated as taxable income for the corporation with the exception that the net profits are reduced by 25% for assets held for a period of 4 to eight years and 50% for assets for assets held longer than eight years. The effective capital gains tax on shares is assumed to be zero.

APPENDIX B

VALUATION OF DEPRECIATION DEDUCTIONS

Cost of Asset =	100.00
Risk Free Bond Rate =	7.50%

1. Straight Line - Pre 1994 Budget

Life Span	3 yrs	4 yrs	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	10 yrs	15 yrs
	33.33	25.00	20.00	16.67	14.29	12.50	11.11	10.00	6.67
	33.33	25.00	20.00	16.67	14.29	12.50	11.11	10.00	6.67
	33.33	25.00	20.00	16.67	14.29	12.50	11.11	10.00	6.67
	86.68	25.00	20.00	16.67	14.29	12.50	11.11	10.00	6.67
		83.73	20.00	16.67	14.29	12.50	11.11	10.00	6.67
			80.92	16.67	14.29	12.50	11.11	10.00	6.67
				78.23	14.29	12.50	11.11	10.00	6.67
					75.67	12.50	11.11	10.00	6.67
						73.22	11.11	10.00	6.67
							70.88	10.00	6.67
								68.64	6.67
									6.67
									6.67
									6.67
									6.67
									58.85

2. Declining Balance - Post 1994 Budget

a] Years: 3

	Depr'n Base	Rate	Dep'n Expense	Accum'ted Depr'n
1	100.00	0.50	50.00	50.00
2	50.00	0.50	25.00	75.00
3	50.00	0.50	25.00	100.00
NPV			88.27	

b] Years: 4

	Depr'n Base	Rate	Dep'n Expense	Accum'ted Depr'n
1	100.00	0.38	37.50	37.50
2	62.50	0.38	23.44	60.94
3	39.06	0.50	19.53	80.47
4	39.06	0.50	19.53	100.00
NPV			85.51	

c] Years: 5

	Depr'n Base	Rate	Dep'n Expense	Accum'ted Depr'n
1	100.00	0.40	40.00	40.00
2	60.00	0.40	24.00	64.00
3	36.00	0.40	14.40	78.40
4	21.60	0.50	10.80	89.20
5	21.60	0.50	10.80	100.00
NPV			85.18	

d] Years: 6

	Depr'n Base	Rate	Dep'n Expense	Accum'ted Depr'n
1	100.00	0.33	33.33	33.33
2	66.67	0.33	22.22	55.56
3	44.44	0.33	14.81	70.37
4	29.63	0.33	9.88	80.25
5	19.75	0.50	9.88	90.12
6	19.75	0.50	9.88	100.00
NPV			**82.84**	

e] Years: 7

	Depr'n Base	Rate	Dep'n Expense	Accum'ted Depr'n
1	100.00	0.43	42.86	42.86
2	57.14	0.43	24.49	67.35
3	32.65	0.43	13.99	81.34
4	18.66	0.43	8.00	89.34
5	10.66	0.43	4.57	93.91
6	6.09	0.50	3.05	96.95
7	6.09	0.50	3.05	100.00
NPV			**85.30**	

f] Years: 8

	Depr'n Base	Rate	Dep'n Expense	Accum'ted Depr'n
1	100.00	0.38	37.50	37.50
2	62.50	0.38	23.44	60.94
3	39.06	0.38	14.65	75.59
4	24.41	0.38	9.16	84.74
5	15.26	0.38	5.72	90.46
6	9.54	0.38	3.58	94.04
7	5.96	0.50	2.98	97.02
8	5.96	0.50	2.98	100.00
NPV			**83.58**	

g] Years: 9

	Depr'n Base	Rate	Dep'n Expense	Accum'ted Depr'n
1	100.00	0.33	33.33	33.33
2	66.67	0.33	22.22	55.56
3	44.44	0.33	14.81	70.37
4	29.63	0.33	9.88	80.25
5	19.75	0.33	6.58	86.83
6	13.17	0.33	4.39	91.22
7	8.78	0.33	2.93	94.15
8	5.85	0.50	2.93	97.07
9	5.85	0.50	2.93	100.00
NPV			**81.92**	

h] Years: 10

	Depr'n Base	Rate	Dep'n Expense	Accum'ted Depr'n
1	100.00	0.30	30.00	30.00
2	70.00	0.30	21.00	51.00
3	49.00	0.30	14.70	65.70
4	34.30	0.30	10.29	75.99
5	24.01	0.30	7.20	83.19
6	16.81	0.30	5.04	88.24
7	11.76	0.30	3.53	91.76
8	8.24	0.33	2.74	94.51
9	8.24	0.33	2.74	97.25
10	8.24	0.33	2.74	100.00
NPV			80.33	

i] Years: 15

	Depr'n Base	Rate	Dep'n Expense	Accum'ted Depr'n
1	100.00	0.20	20.00	20.00
2	80.00	0.20	16.00	36.00
3	64.00	0.20	12.80	48.80
4	51.20	0.20	10.24	59.04
5	40.96	0.20	8.19	67.23
6	32.77	0.20	6.55	73.79
7	26.21	0.20	5.24	79.03
8	20.97	0.20	4.19	83.22
9	16.78	0.20	3.36	86.58
10	13.42	0.20	2.68	89.26
11	10.74	0.20	2.15	91.41
12	8.59	0.25	2.15	93.56
13	8.59	0.25	2.15	95.71
14	8.59	0.25	2.15	97.85
15	8.59	0.25	2.15	100.00
NPV			73.15	

Table B1

Net Present Value of Depreciation Deductions

Years	Pre-Budget Straight Line Depreciation Rates	Post-Budget Declining Balance Depreciation Rates
3	86.68	88.27
4	83.73	85.51
5	80.92	85.18
6	78.23	82.84
7	75.67	85.30
8	73.22	83.58
9	70.88	81.92
10	68.64	80.33
15	58.85	73.15

Note: Assuming a risk free bond rate of 7.50%

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