

University of Pretoria

Engine for economic growth



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

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This is a summary report of a study commissioned by the University of Pretoria in 2012, ***The contribution of University of Pretoria to the South African economy***. The study was a sequel to a similar study undertaken in 2009 and employed an input-output model to which Quantec Research (Pty) Ltd holds intellectual property rights.

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Preface

In response to the oft-quoted statement that universities are the engines of economic growth, the University of Pretoria decided to take an in-depth look at its contribution to the City of Tshwane, the Gauteng Province and to South Africa as a whole. Student enrolment, number of graduates, research publications and patents are the indicators typically reported by universities in South Africa. This report goes beyond these indicators to examine the multiplier effect of the University's academic and operational activities. The study commenced in 2012 using verified and audited 2011 data.

This report shows that the University of Pretoria (UP) is indeed an engine of economic growth. UP's total contribution to economic output amounted to R19.85 billion nationally in 2011, with the largest share, R14.06 billion, in the City of Tshwane where it made up 2.7% of the total output.

With a total student enrolment of about 62 000 students and over 13 000 graduates in 2011, UP made a substantial contribution in terms of the generation of employment, household income and skills development. As the data in this report shows, UP is a significant contributor in Tshwane, Gauteng and South Africa.

As UP grows each year, attracting increasing numbers of talented young people from across South Africa and beyond, with accompanying increases in infrastructure, staff and services, there is a concomitant increase in its economic impact. UP takes pride in its growing contribution to the economic and social development of the country.

Prof Cheryl de la Rey
Vice-Chancellor and Principal
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Introduction

The contribution of universities to economic growth and development is conventionally described in terms of their production of highly skilled human resources and the significance of their research to technical innovation. However, a university as large as the University of Pretoria (UP) is an enterprise that makes a substantial contribution in terms of economic output and the generation of employment and household income to the city-region in which it is situated and to the national economy.

In the case of UP, this economic impact is heightened by the fact that the University is continuing to expand, attracting more students each year, increasing its academic staff and developing its infrastructure to accommodate new demands.

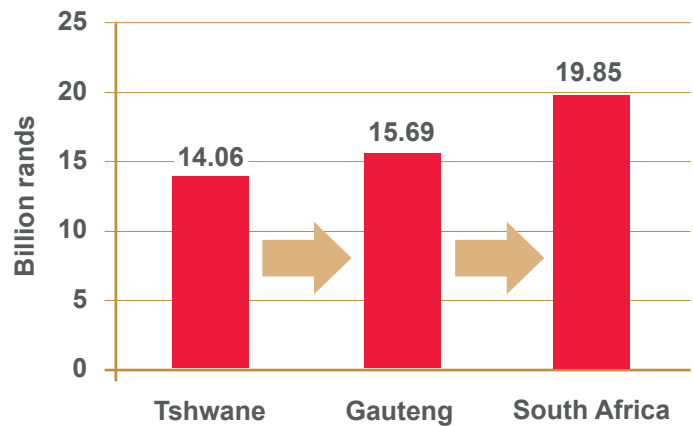
UP has grown steadily since the year 2000. By 2011 it was the second largest university in the country with just over 62 000 students. In the same year, the University awarded 7 973 undergraduate degrees and 5 677 postgraduate degrees.

As an employer, UP generated the equivalent of 4 205 full-time posts in the academic, research and support categories in 2011 and another 459 full-time equivalent posts in its business entities.

In 2012, the University commissioned a study on *The contribution of University of Pretoria to the South African economy* in order to describe in greater detail what the multiplier effect of UP was on the Tshwane region, the province of Gauteng and South Africa as a whole. The study also documented how this economic effect was generated by the University

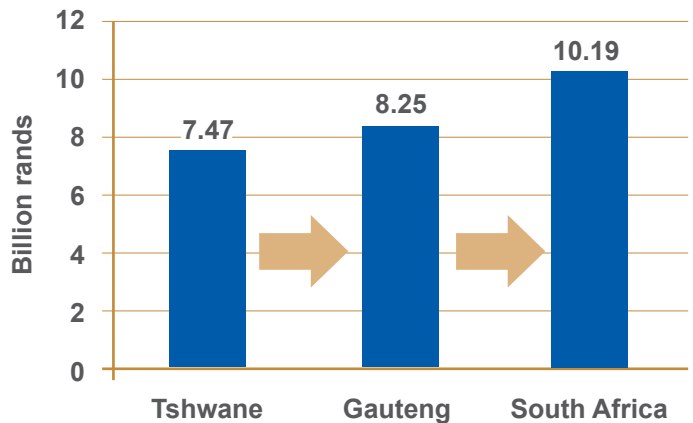
The study considered UP's direct economic effect (arising from academic and other activities of the University and its expenditure on goods and services), its indirect economic effect (generated within the companies that supplied goods and services to the University) and its induced effects (arising from the spending power of the University's students and staff and its contribution to the spending power of employees of its suppliers).

UP's total* impact on output



*Direct, indirect and induced effects

UP's total* impact on gross value added



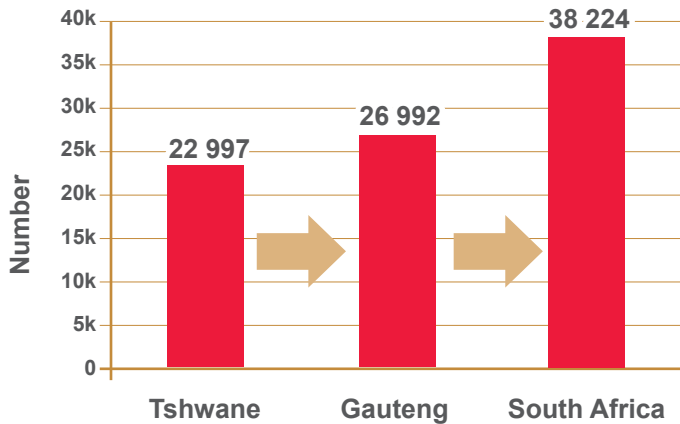
*Direct, indirect and induced effects

An extensive input-output analysis established that UP's total contribution (direct, indirect and induced) to economic output amounted to R19.85 billion nationwide in 2011. The lion's share (R14.06 billion) fell to the region of Tshwane where it constituted 2.7% of total output for the area.

In terms of gross value added (output less intermediate consumption), UP's total effect nationally was valued at R10.19 billion or 0.4% of gross domestic product. Again, approximately 70.0% of this accrued within the Tshwane region.

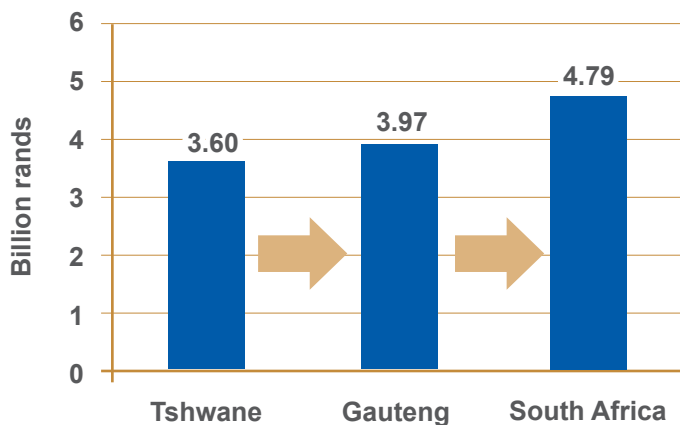


UP's total* impact on employment



*Direct, indirect and induced effects

UP's total* impact on household income



*Direct, indirect and induced effects

A total of 31 881 formal sector jobs were created or sustained nationally as a result of direct employment by the University or its multiplier effects in the national economy. UP also gave rise to some 6 343 informal sector jobs across the country.

Many of the jobs that the University generated were in highly skilled occupations. This was true not only in terms of UP's direct employment but also in many of the enterprises associated with it.

Close to R4.79 billion in earnings accrued to households in various parts of South Africa as a result of UP's activities and its demand for goods and services. In the Tshwane region alone, total household income arising from UP's activities amounted to R3.60 billion in 2011.

The University, as a government-funded non-profit entity, pays limited direct taxes. However, the total tax-revenue impact of UP – related to its direct, indirect and induced economic effects – amounted to R2.71 billion nationwide in 2011.

UP also managed to generate considerable added value from the R1.68 billion subsidy it received from government in 2011/12: for each rand received it created an additional R6.05 in added value.

The study examined UP as an enterprise, exploring its sources of income, the policies and vision that drive it and many features of its core activities. These are summarised along with the main economic impact findings in the pages that follow.

Higher education policy and budget framework

In terms of the Medium-term Strategic Framework for South Africa for the period 2009 to 2014, the Department of Higher Education and Training (DHET) has particular responsibility for developing a skilled and capable workforce to support an inclusive growth path. This outcome has informed the DHET's five-year strategic plan for 2010/11 to 2014/15, which has the following goals:

- Increase the number of skilled youth by expanding access to education and training.
- Increase the number of students successfully entering the labour market on completion of training.
- Expand the capacity for research, development and innovation in support of economic growth and social development.
- Offer college curricula that are responsive to the demands of the market place, capable of rapid adaptation to changing skills needs, and place emphasis on artisan training.



- Establish credible institutional mechanisms for skills planning to support an inclusive growth path.
- Ensure effective, professional and efficient administration informed by good corporate governance practices.

For several decades, a large proportion of the national budget has been allocated to education. The sector's share of the budget grew from the mid-1980s through to 1997 when it peaked at 22.0% of the total budget. Since then, the share of the budget devoted to education and many other government functions has declined in the face of a major increase in spending on social grants. The budget allocation to education amounted to R207 billion in 2012/13, with tertiary education receiving approximately one fifth of the total education budget.

In 2011/12 UP received R1.68 billion in government grants. A block grant of R1.48 billion formed the bulk of this, while financial assistance from a number of research and development funds making up the difference. Overall, UP was second only to Unisa in the size of the total amount of government funding it received. This allocation comprised 9.0% of the total funding to higher education institutions.

University of Pretoria	R'000
Block grant	1 476 256
Interest and redemption	116
Infrastructure and efficiency funds	68 400
Development funds	16 912
Ad hoc	37 550
NSFAS: General allocation	74 718
NSFAS: Teacher training	6 114
NSFAS: Students with disabilities	2 645
Total	1 682 711

UP and the “business” of learning, teaching and research

UP has expanded continually over the past decade and, with its strong focus on post-graduate education and research, is regarded as one of the top 600 universities in the world. The academic functions of teaching, learning and research constitute the core business of the University's nine faculties and the Gordon Institute of Business Science (GIBS). These activities are dispersed across six campuses in Gauteng.

Between 2000 and 2011, the number of undergraduates registered at UP increased at an average annual rate of 4.2% while the number of post-graduates grew by an average of 4.9% a year. By 2011, the University catered to 62 500 students and was the second largest in the country. At that point, UP offered 1 394 academic study programmes and 230 qualifications

Profile of UP's students in 2011

- 71.0% were undergraduates.
- About 28.0% were engaged in distance learning.
- 59.0% were female.
- 22.0% were enrolled in the Faculty of Engineering, Built Environment and Information Technology.
- One in five was studying economic and management sciences.

In 2011, a total of 13 650 individuals graduated from UP. Nearly 42.0% of these attained a post-graduate qualification. According to the DHET, in 2011 one out of every 10 degrees awarded in South Africa was a UP degree. The University conferred 8.7% of all bachelor's degrees awarded nationwide, 14.0% of master's degrees and 13.2% of doctorates. More than 58.0% of all graduates were black, coloured or of Indian/Asian descent.

The Continuing Education at University of Pretoria Trust (CE at UP) offered more than 1 500 short learning



programmes during the year and attracted 24 543 participants.

The University's employees represent a large and highly skilled pool of human resources. UP filled the equivalent of 4 205 full-time positions in 2011 and its business entities created an additional 459 full-time equivalent posts. Two out of three employees were highly skilled.

About UP's employees

- In 2012, approximately 1 430 of teaching and research professionals had a post-graduate degree and nearly half of these had a doctoral degree.
- UP's academic and support staff comprise 6.8% of all such staff countrywide.
- The University boasts 12.3% of the elite national list of researchers rated by the National Research Foundation (NRF).

At the forefront of research

UP consistently ranks among the top South African universities in terms of its research output and postgraduate education.

- In 2011, UP published more research articles than any other public university in South Africa. Most of these appeared in distinguished international journals and served to increase the University's visibility on the international stage.
- In the same year UP awarded more than 200 doctoral degrees, achieving the highest number of PhD-level graduates of any University in the country.
- In 2012, UP doubled its number of international post-doctoral fellows. This serves to expand the University's research and teaching networks to new institutions and new areas of the globe.

The number of NRF-rated researchers at UP has continued to increase steadily: in 2011 the University reached the 300 mark and in 2012 the number grew to 330. This attests not only to the volume but also to the quality and significance of research conducted.

Enterprise and development

In addition to its core academic business, UP engages in other significant activities, including continuing education, contract research and consulting, sport, commercialisation of research and venture creation investments.

In 2000, the Enterprises at the University of Pretoria Trust (E at UP) was created to develop and manage the business activities of UP. The creation of this dedicated structure has enhanced the University's interaction with the public and private sectors.

E at UP strives to optimise opportunities in appropriate commercial ventures in support of the broader vision of UP. Not only do these business activities earn additional income for the University and its staff, but they extract additional value from the University's resources, assets and intellectual capital and extend services to the community.

Income is generated through various companies within the trust, including two flagship entities, Business Enterprises at the University of Pretoria (Pty) Ltd (BE at UP) and the Continuing Education at the University of Pretoria Trust (CE at UP). These entities have distinguished themselves as service providers in their fields of operation.

BE at UP facilitates interaction between the business world and the vast pool of intellectual capital represented by UP's academics in a wide range of disciplines. The company





aims to create an environment for entrepreneurship and the commercialisation of products and services developed within the University. BE at UP also manages contract research and consulting work by University staff, performing the marketing and contracting functions.

CE at UP provides short programmes for skills development and training across a range of sectors. It has gained a reputation for enhancing productivity, empowering employees and addressing the ongoing learning needs of its clients and students. Within 10 years of establishment, CE at UP has developed the capacity to service more than 24 000 students annually.

Industry research partnerships

UP has a solid record of research collaboration and partnerships with industry. In recent years it has forged more than 100 new research contracts with partners in sectors including water management, mining, energy, information technology, health, petrochemicals and food production. These collaborative projects not only contribute to private sector growth but also provide vital experience for skilled graduates.

The number of industry-funded research chairs at the University continues to grow. The full list of these chairs, as at end-2102, appears below, with the three newest clearly identified.



Measuring UP's short-term economic outputs

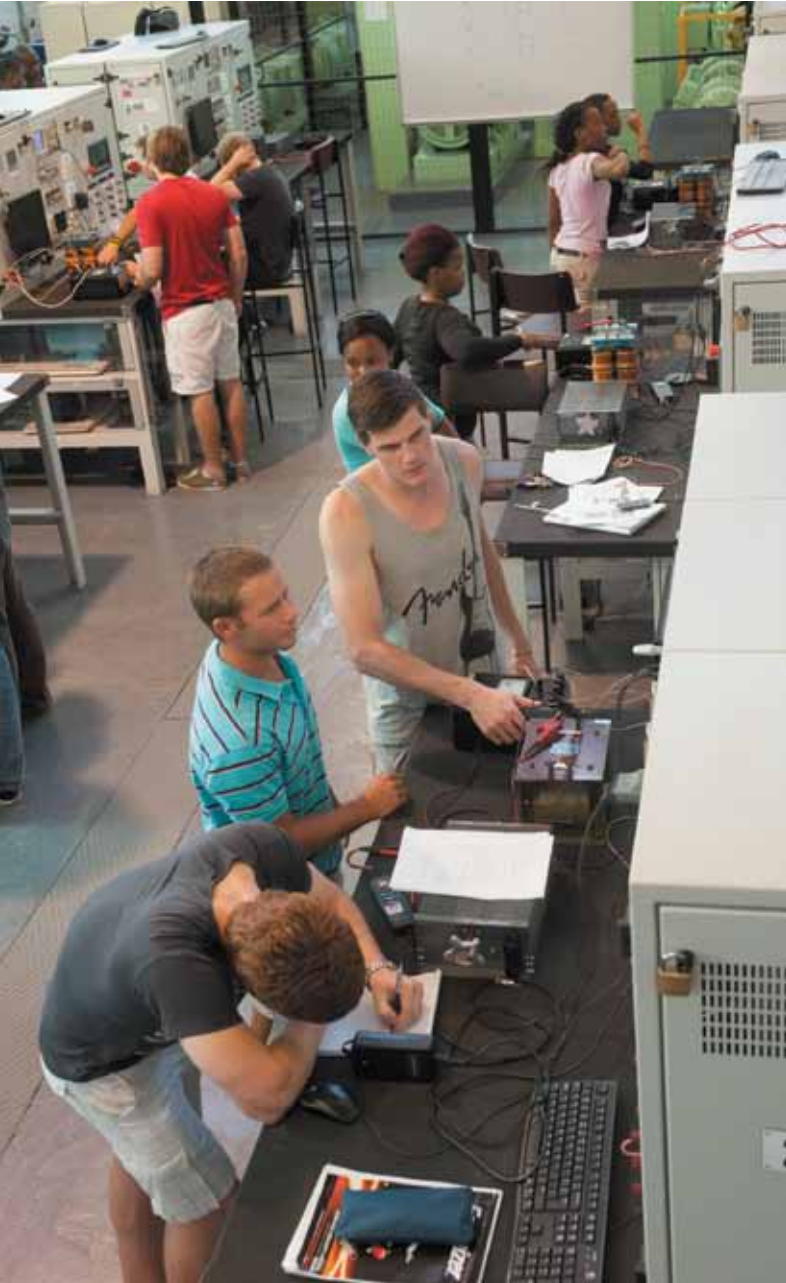
Input-output (IO) analysis was the main method of determining the short-term economic impact of UP during the course of 2011. This is a valuable tool that makes it possible to quantify and explain economic impacts that occur at different levels as a consequence of initial spending by UP, its students and its staff.

IO analysis typically considers various levels of economic impacts:

Direct impacts. These are changes in economic activity that occur because of the spending involved in running the University (for example, salaries and capital expenditure) and procurement of goods and services.

Indirect impacts. These refer to changes in production and sales among manufacturers, retailers, wholesalers

Faculty	Area of research
Engineering, Built Environment and Information Technology	Energy efficiency (New in 2012) Power electronics (New in 2012) Safety, health and environment (New in 2012)
Economic and Management Sciences	Monetary economics
Faculty of Law	Intellectual property law
Faculty of Natural and Agricultural Sciences	Actuarial sciences Tree pathology Forest genomics Geology Forestry
Faculty of Veterinary Science	Primary animal healthcare Poultry health and production



and other service providers that provide goods and services to the University.

Induced impacts. These refer to economic activity – typically in the supply of food, clothing, housing, transport and other consumer goods and services – that occurs as a result of the spending power of University staff and students, and the contribution that the university makes to the spending power of the staff of its suppliers.

The IO analysis undertaken by Quantec Research tracked these various types of impacts for different geographic areas: the Tshwane area, the province of Gauteng and South Africa as a whole. The study measured this impact in terms of total economic output, gross value added, employment created or sustained, household income and taxes generated.

Although this summary does not reflect such detail, the study also looked at the impact of different categories of UP economic activity:

- The activities of the UP academic programme.
- The impact of the business entities of UP.
- The effect of major capital spending by the University.
- The impact of student spending.

UP's wider impact on economic output

UP and its student community generated output valued at R9.32 billion. The combined direct, indirect and induced impact of the University on the output of the city, province and country respectively are indicated below. While UP's economic benefits are most strongly felt in the area immediately surrounding it, there is a measurable provincial and national effect.

Area	Total output-impact	% of total output for area	Output per R1 of UP output
Tshwane	R14.06 billion	2.68%	R1.51
Gauteng	R15.69 billion	0.74%	R1.69
South Africa	R19.85 billion	0.33%	R2.13



UP's GVA-impact on Tshwane region	
Direct & indirect	R10.96 billion
Induced	R3.09 billion
Total	R14.06 billion

UP's direct and indirect impacts generated sales amounting to R10.96 billion for other sectors in the Tshwane region. The induced impact of UP on output in the Tshwane area amounted to a further R3.09 billion, bringing the total impact on the region's output to R14.06 billion, or 2.9% of region's total output.

The direct effect of UP's activities on total output increased by an average of 6.5% per year over the period 2007 to 2011.

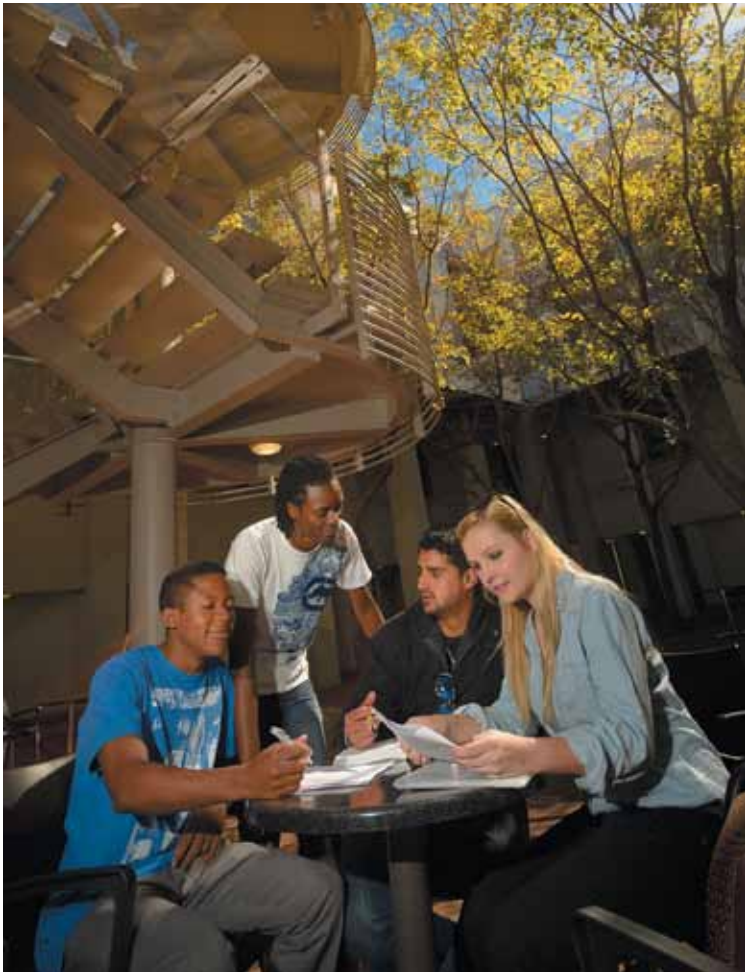
UP's wider impact on gross value added

The University's gross value added (GVA) was calculated by adding together the compensation of employees, the net operating surplus, the consumption of fixed capital and net indirect taxes levied on production.

The direct and indirect effects of UP's operations contributed R3.06 billion to operating surpluses of all Tshwane-based business entities and accounted for R3.03 billion of the total salary bill of the Tshwane region.

The total direct, indirect and induced impact of UP's activities at regional, provincial and national levels is summarised in the table below.

The direct effect of UP's activities and expenditure increased by an average of 7.3% per year between 2007 and 2011.



UP's GVA-impact on Tshwane region	
Contribution to operating surpluses	R3.06 billion
Contribution to total remuneration	R3.03 billion
Total GVA-impact	R7.47 billion

Area	Total GVA-impact	% of total GVA for area	GVA per R1 of UP GVA
Tshwane	R7.47 billion	3.19%	R0.80
Gauteng	R8.25 billion	0.91%	R0.89
South Africa	R10.19 billion	0.38%	R1.09



UP received R1.68 billion in government grants in 2011 and for each rand received it created R6.05 of added value. The government subsidy is not sufficient to finance all of the University's activities and additional income is generated by tuition fees, sponsorships and donations, and the profits generated by UP's business entities. The University's own GVA was more than double the value of its government subsidy.

UP's wider impact on employment

In 2011, the University's direct employment requirement totalled 8 237 jobs. Through its business, it gave rise to an additional 22 998 formal and informal sector jobs across the region, amounting to 2.6% of total employment in Tshwane.



Type of job	Number of jobs	% of employment
UP's direct employment requirement	8 237	
Tshwane direct and indirect formal sector	14 503	1.63%
Tshwane induced formal sector	5 353	0.60%
Total Tshwane formal	19 857	2.23%
Tshwane informal sector	3 141	
Total Tshwane formal and informal	22 998	2.59%

Beyond the Tshwane area, UP's activities generated additional jobs. The total number of formal jobs generated nationwide was 31 881 and the informal tally was 6 343. For each job created within UP by its teaching and research programmes, another 1.32 formal sector jobs could potentially be sustained through the combined direct, indirect and induced effects.



Area	No of jobs formal	% of formal employment	No of jobs informal	Total no of jobs	% of total employment
Tshwane	19 857	2.23%	3 141	22 998	2.59%
Gauteng	23 180	0.64%	3 812	26 992	0.74%
South Africa	31 881	0.26%	6 343	38 224	0.31%



UP's own employment profile leans strongly towards highly skilled personnel and this effect is carried through, to some extent, in the jobs it gives rise to in the wider economy.

In Tshwane, highly skilled and skilled jobs represented 26.5% and 45.1% of all jobs resulting from the UP multiplier effect in the region.

Nationally, the 31 881 formal sector jobs generated in response to UP's business and service needs comprised:

- 13 243 skilled jobs (41.5%)
- 12 036 semi-skilled on unskilled jobs (37.8%)
- 6 601 highly skilled jobs (20.7% of the total)

Total direct employment stimulated by UP's activities and spending increased by an average of 2.6% per year over the period 2007 to 2011.

UP's wider impact on household income

The Tshwane-wide impact of UP's activities resulted in income to the value of R3.6 billion accruing to households in the region. Direct effects accounted for the lion's share of household income, totalling R2.73 billion, while indirect effects contributed a further R297 million and induced effects R573 million.

The household income-impact of UP's activities and spending was quite widely felt, with nearly 25.0% of income generated benefitting households beyond the boundaries of the Tshwane region,

The combined income-effect of UP's activities was directed mainly to higher socio-economic groups. More than half of the total amount (50.8%) owing to direct, indirect and induced effects accrued to the wealthiest 20.0% of the region's population. This tendency was very slightly diluted when effects on the wider Gauteng and national populations were considered.

In the period 2007 to 2011, UP's total direct contribution to household income increased by an average of 5.5% per year.

Area	Total household income-impact	% of total household income
Tshwane	R3.60 billion	2.77%
Gauteng	R3.97 billion	0.83%
South Africa	R4.79 billion	0.36%

UP's wider impact on tax revenue

As a government-funded educational institution, UP contributes little in the way of direct taxes to the state. But tax levied on services provided and required by UP and on its other expenditure generated R1.42 billion in taxes within the Tshwane region. When taxes levied on induced economic effects were added, the total Tshwane-wide tax contribution arising from UP's activities amounted to R1.88 billion.

Area	Total tax revenue-impact	% of area's tax revenue
Tshwane	R1.88 billion	2.76%
Gauteng	R2.13 billion	0.77%
South Africa	R2.71 billion	0.35%





The total tax revenue impact – from direct, indirect and induced effects – amounted to R2.13 billion across the province of Gauteng and R2.71 billion countrywide. About 36.8% of the national figure comprised taxes on households while indirect taxes accounted for 44.1%

There was an average annual increase of 5.1% in UP's direct contribution to government revenue between 2007 and 2011.

UP's long-term contribution to development

The value added by the University to the community of Tshwane and the nation more broadly extends well beyond the jobs it creates and its boost to business through operational and capital spending. The University's core role of producing well-qualified workers for many of South Africa's most skilled positions is critical to future growth and development.

The World Bank estimates national wealth by adding together a country's natural capital (the value of its stock of renewable and non-renewable resources), its produced assets (the value of its stock of structures, infrastructure,

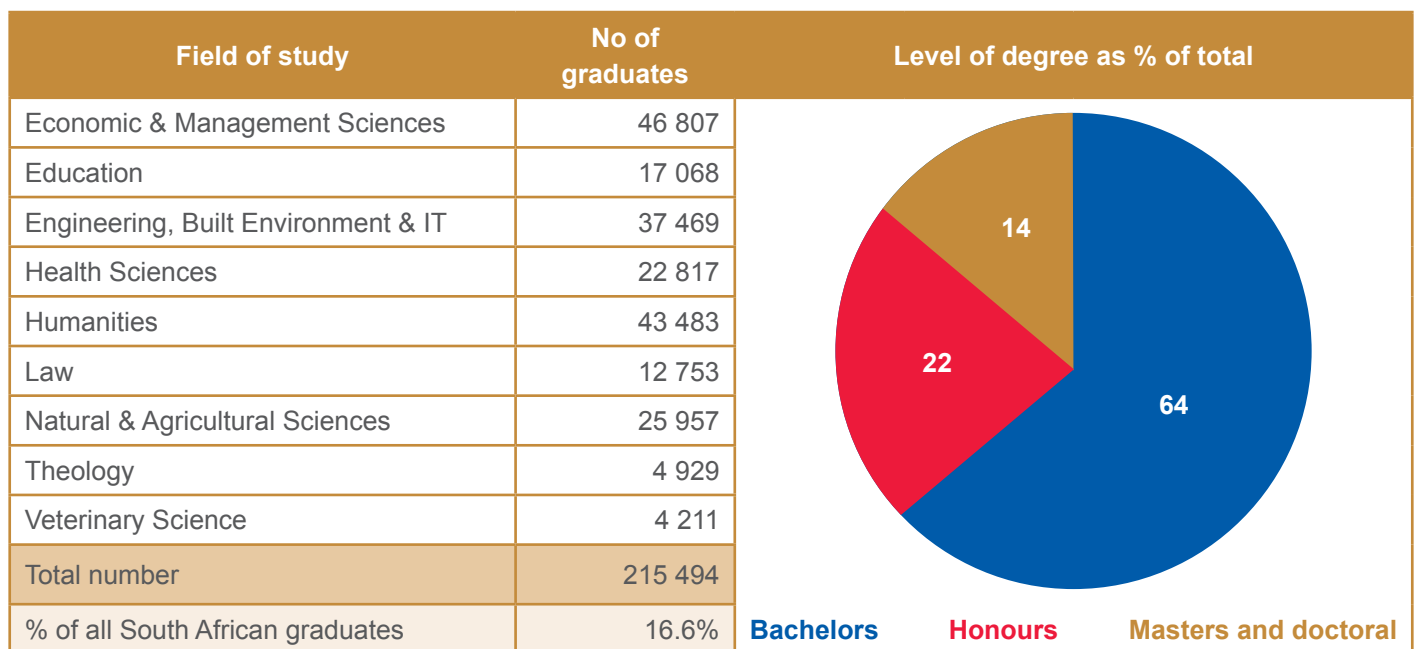
machinery and equipment, and urban land) and its human resources.

This study measured the relative contribution of these three components to South Africa's national wealth and concluded that human resources accounted for 75.0%, while produced assets accounted for 20.0% and natural capital for 5.0%. Studies in developed countries have produced similar results.

In view of the significance of human capital, UP makes a critical contribution to creating and maintaining national wealth through education and training for positions that require high skill levels.

Increasing the output of relevant, highly skilled graduates

Between 1968 and 2011, UP has contributed more than 215 000 highly skilled graduates who have gained employment in the South African job market. Currently, the annual number of graduates is in the region of 8 000 undergraduates and 5 800 postgraduates. Many of these degrees are in the fields of business management, the natural sciences and healthcare where the demand for skills far exceeds supply.





The University's Strategic Plan 2025 sets targets that relate to increasing the volume of graduates and, at the same time, further improving the standing of the University at home and abroad and strengthening the quality and relevance of its teaching and research programmes. These are:

- To increase the University's ranking (among the world's best universities) to within the 150-250



range and to achieve levels of international activity comparable to major universities abroad.

- To achieve a balanced portfolio of partnerships with industry and government in terms of high-level skills needs.
- To attain positive outcomes when evaluating degrees and professional programmes against international benchmarks.
- To achieve student diversity and success rates similar to those of top-ranking research-intensive universities.
- To have a total of 75 000 students (55 000 contact students and 20 000 distance education students) enrolled by 2025.
- To double the current number of NRF-rated academic staff members.
- To identify, recruit and admit top-performing school-leavers nationally.
- To steadily increase levels of satisfaction with support services.
- To align the provision of facilities with the growth strategies and enrolment targets.

The University's ambitions and vision are consistent with national development objectives and have the potential to contribute to their attainment.

Deploying skills in service of communities

UP is involved in a "hands on" manner in addressing a range of the socio-economic challenges that confront South Africa. It does so through various community partnerships that are coordinated by the Community Engagement Office in the Department for Education Innovation. This office supports all staff and students who wish to become involved in community development activities for research or curricular purposes – or as volunteers without formal academic requirements – to meet.

In 2011, 7 500 UP students were registered for modules with a mandatory community engagement element. In addition, about 7 000 participated in community projects on a voluntary basis, boosting the input to these projects and making them sustainable.



UP's most significant partnerships involve communities in the Tshwane areas of Mamelodi, Eersterust, Pretoria North, Pretoria West and the inner city areas of Sunnyside and Hatfield. In all cases, the University works with community networks to identify engagement opportunities and make decisions on the approaches to be adopted. Five of the most successful partnerships are described briefly below.

Alaska, Mamelodi

This programme is run by the Viva Foundation in collaboration with UP and other partners. It involves students and staff from a variety of disciplines and has delivered an after-school centre, a hospice, a crèche, preventive healthcare services, waste management awareness initiatives, a general shop (which is operated by the community), a library and a computer centre that offers computer literacy classes. About 2000 members of the community benefit directly from the facilities and services created.

Undergraduates in the Faculty of Engineering, Built Environment and Information Technology are required to complete a compulsory module comprising a community-based project. Students work in the community for at least 40 hours to address a specific need and to transfer knowledge or a skill in the process. The module, which is accredited by the Engineering Council of South Africa, aims to develop the student's awareness of personal, social and cultural values, build life skills for future practice and encourage a multidisciplinary approach.

Postgraduate architectural research

Each year 60 honours students and eight lecturers in the Department of Architecture undertake research in communities that include Slovo Park, Viva Village in Mamelodi and the Crossroads Shelter.

GIBS empowerment initiatives

GIBS' Learner Empowerment Programme enables students to teach learners at the Gordon Primary School





in Alexandra, a township in the north of Johannesburg, how to use mechanical tools. The GIBS Educator Empowerment Programme involves faculty members in the development of software that assists and empowers teachers of mathematics and physical science.

Veterinary outreach

Undergraduate and postgraduate veterinary students provide community services as part of their curriculum requirements. They offer education and skills training for small-scale emerging farmers and through the Production Animal Clinic extend assistance to animal owners in low-income communities. They also increase community awareness of animal health and focus on primary healthcare of animals.

Research and the community

The university is recognised nationally and internationally for its contributions in the fields of veterinary science, agricultural and biological sciences, engineering and social sciences. UP researchers also contribute significantly to the fields of health, education, human rights and leadership. Significant research initiatives include:

- The Medical Research Council's Maternal and Infant Health Care Strategies Research Unit in the Faculty of Health Sciences. This unit develops primary and secondary health care interventions to reduce mortality and morbidity among mothers and infants. It is involved in expanding emergency obstetric care to 25 health districts.
- The Centre for Sustainable Malaria Control which undertakes research on sustainable trans-disciplinary methods of malaria control. An internationally-funded project in collaboration with the University of California Berkeley is investigating the effect of pesticides used in malaria control on the neurodevelopment of children.
- UP's institution-wide research theme on energy which has stimulated projects relating to energy security,





clean and renewable energy, energy efficiency and the impact of energy technologies on society.

- The institution's food, nutrition and wellness research theme which focuses on food safety, food security, sustainable animal- and plant-based food production, health promotion, and policies impacting on a range of areas.
- Water usage and management research that contributes to optimising available sources of clean water for sustainable use.
- Research from the Human Economy Programme and various departments in the Faculty of Humanities that has produced a range of publications on poverty, social inequality and poverty reduction interventions.
- Research by the Faculty of Veterinary Science – the only such faculty in South Africa – on animal vaccines, the health of food-producing animals, and the development of tests for tuberculosis and other diseases in wildlife.
- Scholarly contributions by the Faculty of Law in the areas of human rights law, development law and the process of transformation and reconciliation in post-apartheid South Africa.
- Leading studies by the Faculty of Education on a wide range of topics including effective schools, school governance, education law, early childhood education, literacy among South African children and education in mathematics and life sciences.
- A research collaboration between the Albert Luthuli Centre for Responsible Leadership and Harvard Business School to examine the drivers and consequences of corporate governance in South Africa over the past 20 years.
- Research by the Gordon Institute of Business Science on emerging and dynamic markets.



By taking account of UP's developmental role in relation to the national economy as well as its more specifically defined economic impact, the study undertaken by Quantec Research on behalf of the University has yielded a comprehensive picture of UP's considerable contribution to the growth and welfare of the city-region, the province and the nation.





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